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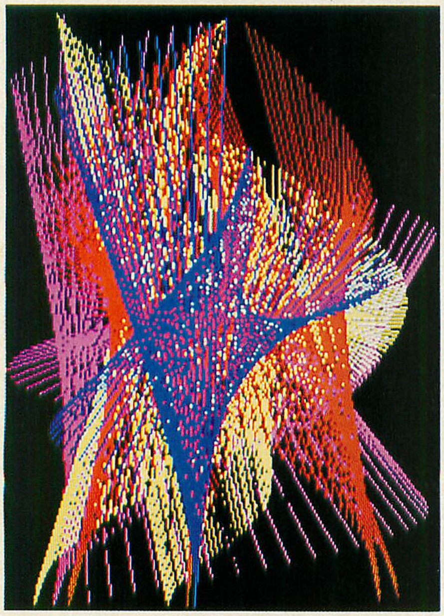
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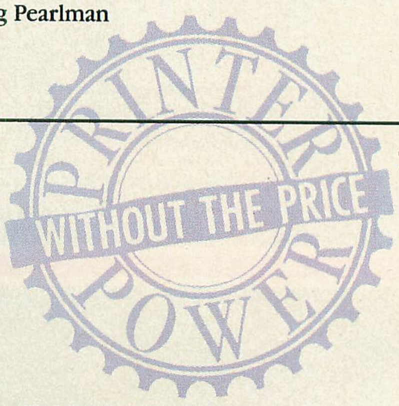
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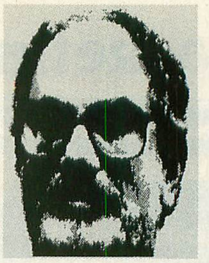
July 1987, Volume 6, Number 3

Antic—The Atari Resource is published twelve times per year by Antic Publishing. Editorial offices are located at 544 Second Street, San Francisco, CA 94107. ISSN 0745-2527. Second Class Postage paid at San Francisco, California and additional mailing offices. POSTMASTER: Send address change to **Antic**, P.O. Box 1919, Marion, OH 43306.

Subscriptions: One year (12 issues) $28. Canada and Mexico add $8, other foreign add $12. Action Edition (12 issues with disks) $99.95, all foreign add $25. (California residents add 6½% sales tax for disk subscriptions.

Editorial submissions should include text and program listings on disk and paper. Submissions will be returned if stamped, self-addressed mailer is supplied. **Antic** assumes no responsibility for unsolicited editorial material.

Editorial



As you may already have noticed elsewhere in this issue, the price of each double-sided Antic Monthly Disk has been slashed almost in half—from $10.95 to $5.95. And the newsstand price of the monthly magazine-plus-disk Action Edition was lowered by three dollars—now $9.95 instead of $12.95.

At the same time, we have been forced to raise the North American newsstand price of **Antic** 45 cents in order to bring income more in line with current costs. When you compare a $3/$5 disk-price reduction against a 45-cent magazine increase, we think the overall change seems pretty fair.

Also, Antic Publishing is *not* raising any subscription prices at this time. And we presently have *no* plans for any subscription price boosts. This means it's a better deal than ever to subscribe to your favorite Atari magazine—only $28 for 12 **Antic** issues in the U.S.. And for a short time only, a special offer of $79.95 for the Action Edition of 12 disk issues.

Our primary purpose in drastically cutting prices of the double-sided Antic Monthly Disk is to make it a lot easier for Atari "power users" to build up a large library of useful and valuable software at a lower cost than ever before possible! This magazine's surveys during the past two years have shown clearly that **Antic** readers now consist almost equally of programming hobbyists, and power users who are not heavily interested in writing their own software.

Typing in magazine listings is an excellent way to learn programming. But it cannot be an especially gratifying experience for people who just want to *use* the software, rather than figuring out exactly how it works. Now for less than $6 a month, you can get a disk that immediately delivers every program in the issue—plus Xtended Disk Bonus software that's too big and powerful to be printed as a type-in listing.

The Xtended Disk Bonus is a new feature starting with this issue of **Antic**. Every month we will publish at least one disk-only program. Whenever possible, this Xtended Bonus will be a listing that is too big or too complicated to have been accepted as a type-in listing. This month's Xtended Bonus is a full-featured 8-bit word processor, written in speedy machine language by professional programmers. Next month, the disk bonus will a professionally programmed 8-bit database. In future months, there will also be Xtended Disk Bonuses for the ST.

Because readers don't need to type in the Xtended Disk Bonus, we will bring you big, ambitious application software written in any language that has a "stand-alone" option. (Stand-alone programs can be used by readers who don't own the actual language.) In the past, **Antic** has been unable to accept many otherwise excellent programs simply because they were too big to print, too hard to type, or written in a language that most readers couldn't use.

But now the Xtended Disk Bonus feature lets us bring you a new treasure trove of powerful software at unheard-of savings—a double sided disk with close to 176K of Atari programs per month for less than $6. We can hardly believe it ourselves. . .

By the way, **Antic** would like to thank the thousands of readers who have been voting for their favorite features in recent issues by circling numbers on the monthly reader service card. At this writing, your first ballots are just being tabulated.

Nat Friedland

Nat Friedland
Editor, **Antic**

DESIGNING LABELS

Designer Labels (**Antic**, April 1987) is an excellent program, but here's my simple fix that will allow readers to use graphics from the *original* Print Shop disk as well as the Print Shop Graphics Library disks:

Boot Print Shop as usual, and enter the Graphic Editor. Then GET any of the 60 designs on the original disk and SAVE the design to a data disk formatted by Print Shop. The saved graphics are now compatible with the Designer Labels program and may be used exactly as you would use graphics from the Library disks. You still can't use images directly from the Print Shop disk itself, but you *can* use the graphics from it once you've followed this procedure.

Robert Conklin
Liverpool, New York

EDU-WARE LIST

I am computer-using educator who has compiled a database of over 350 commercial educational software titles for the 8-bit Atari. In order to keep this database current, I welcome any update information that **Antic** readers might send me. I am also glad to send a copy of my seven-page, single-spaced list to anyone who sends me a stamped, self-addressed envelope plus 50 cents to cover printing costs.

William Brooks III
Naquag School
Rutland, MA 01543

DVORAK TOOL

The *Dvorak Keyboard* (**Antic**, March 1987), when combined with the Multi-AUTORUN program from the same issue, can be used with the Writer's Tool word processor from OSS. Format a disk and write the modified DOS from Multi-AUTORUN on the disk. Save the Dvorak file to disk as AUTORUN.SYS, and copy the AUTORUN.SYS file from the Writer's Tool disk, saving it to the new disk as AUTORUN1.SYS. When the program initializes, the Dvorak program operates as advertised. Now—if I can just figure out how to type on my Dvorak keyboard.

Brian Pendergrass
APO, NY

SOUND OFF

Can I permanently modify DOS to disable *all* input/output sounds? I realize that POKE 65,0 turns it off, but pressing [RESET] brings it back.

Arnel Gallanosa

If you are a machine language programmer, you could write a routine to store a zero at location 65 during every vertical blank interrupt, preserve this routine under a new MEMLO, and trap the RESET vector to keep it there. Readers, let us know if there's an easier way to do this.—ANTIC ED

SILENT TYPEWRITER

We have received a lot of letters and phone calls regarding the Talking Typewriter *(Antic, January 1987). Many praised the project and asked us to print the advanced version of it, while others said it didn't work at all. We tested our prototype for an entire month at **Antic** before printing the article, and we can think of no reason for a properly built board and a properly typed program not to work. Here are some common errors:*

- *Some people wired the serial connector backwards. The diagram shows the pins as you look at the computer—that is, from the rear of the plug (as the diagram states).*
- *The .022pF capacitor in Figure 1 should be a **.022uF**—our mistake.*
- *The notes at the bottom of the parts list on page 23 explain some workable substitutions.*—ANTIC ED

TTY FOR THE DEAF

Regarding Deaf Modem Help *(**Antic** I/O, April 1987), it has been brought to our attention that that page 69 of the Atari 850 Interface Manual contains a listing for a Baudot terminal emulator. This may be helpful to persons wishing to to communicate with their deaf friends via Atari computers and modems.*—ANTIC ED

continued on page 10



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CRT Cleaner	$ 14.77
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1017 Cover	$ 7.77
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1224 Cover	$ 11.77

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CIRCLE 041 ON READER SERVICE CARD

IO BOARD
continued from page 7

PRAISE ATARI CORP.

When two keys broke off the numeric keyboard of my 1040ST—after the warranty expired—I figured I was in bad shape. However, I ran into a beta tester for Atari Corp. at the Las Vegas CES, who told me I should write to Jack Tramiel and explain the problem.

Three weeks later I received a letter from Atari Technical Services Manager Randy Hain, and 10 days after that I received—free of charge—an entire new ST keyboard.

I was only looking for the two replacement keys, but to have a large company replace an expensive part at *company* expense was really unexpected. I can't say enough good about Atari Corp.—if you want a computer that you know is supported *and* backed up, then look to Atari.

Richard Draude
Kingman, Arizona

MONITORING THE ST

Is the Atari monochrome monitor the only "brand" of monitor that works with the ST, or will green or amber monitors manufactured by other companies work?

Mark Brown
Ashland, OR

Any monitor, color or monochrome, can display the ST monochrome signal—provided the monitor can lock onto the non-standard "sync" signals sent out by the ST. The ST monochrome signal runs at about 70 Hertz vertical and 31.5 kiloHertz horizontal. The NEC MultiSync can handle the 31.5 kHz, but the picture might roll while trying to lock onto the non-standard 70 Hz. Even if you found a compatible monitor, you'd have to build a cutomized hookup cable running from your monitor to the Atari's DIN 13-pin video plug. You'll also need to hook pin 4 of the video plug to the ground to alert the ST to send out a monochrome signal. Why not just stick with the inexpensive, rock-solid Atari SM124 monitor?—ANTIC ED

FIND MY RAM

I have an 800XL with 8K of RAM missing. I changed all eight RAM chips and got the same result. The BASIC FRE(0) function shows 37,902 bytes available. What could be the problem?

George Simon
CompuServe
ID 72347,2657

Newer users often ask this question. Your Atari 800XL (as well as the Commodore 64 and the Apple IIe) is advertised as a 64K computer. Putting it simply, this means that the 6502 microprocessor chip which is the heart of the computer can address a maximum 64K of memory. But approximately 16K of memory is reserved for the operating system and other overhead such as screen memory. DOS uses a little more. When you use BASIC, 8K of the remaining RAM is replaced by 8K of ROM.

FRENCH DOS

With regard to Clement Carbonneau's question about re-writing the DOS menu in French (**Antic**, April 1987): *Anything* can be loaded to AtariWriter. Therefore, you can load the DUP.SYS file from the DOS menu into AtariWriter. Edit the file—making sure that your new text message has exactly the same number of characters as the original text—and save it just like any other file. Some files come up weird when you do this, but not DUP.SYS.

Beth Jane Freeman
CompuServe ID
71777,3172

MILES AWAY

I'm trying desperately to find the Miles Computing accounting programs (General Ledger, Payroll, etc.). Can anyone help me?

J.P. Coggins
Fernandina Beach,
Florida

***Antic** reviewed the Miles Payroll Accounting System in January, 1987. Here's the address: Miles Computing Inc., 21018 Osborne Street, Building 5, Canoga Park, CA 91304. (818) 341-1411.*—ANTIC ED

1200XL BLUES

Readers still ask if the Atari 1200XL is really incompatible with most 800 and 800XL programs. The answer is that, with a translator disk such as FIX XL ($10, The Catalog, PD0026) the 1200XL should work with almost all 800 and 800XL programs—but since some modems and other devices (such as ICD's P:R: Connection) draw their power from the serial port, the software controlling the devices won't work because the 1200XL serial port doesn't supply power the same way as other Atari 8-bit computers. There will also be problems with Atari 800 multiplayer games that access joystick ports 3 and 4.—ANTIC ED

ROTATE FIX

ROTATE FIX
If you tried and failed to get *Rotate* from the February, 1987 Tech Tips to work, here is the fix:

1. Change the 2317 in line 40 to 217.
2. Change the 233 in line 40 to 223.
3. Change the 4C in line 70 to 40.
4. Change the 102 in line 80 to 1024.

TELECOMMUNICATIONS

Exactly what do I need in order to transfer Atariwriter text files from my Atari 800XL or 130XE to my IBM-compatible Leading Edge D at work?

Patrick Lyle
Wheeling, WV

Each computer needs its own modem and communications software. The modems should both be capable of transmitting at the same baud rate, usually 300 or 1200. Your software must use the same file transfer protocols ("handshaking"), so look for two programs with a common file transfer method. For the Atari, we suggest Backtalk 1.2 ($19.95, The Catalog, APO154), which supports both XMODEM and XON/XOFF protocols and can translate the weird Atari carriage returns into standard ones. It works with the XM301, as well as other modems.—ANTIC ED

I/O Board

ULTIMATE PRINTER?

You called the Star SB-10 "the ultimate dot-matrix printer" (**Antic**, February 1986). Print Shop and Megafont II+ don't work on the SB-10. Broderbund said its programs don't work with 24-pin printers, and Star Micronics said the SB-10 isn't compatible with any other printer. Since you claim that it's the ultimate printer and use it for your listings, please tell me what programs *do* work with the SB-10.

Roger Brownell
Compuserve I.D.
71777,164

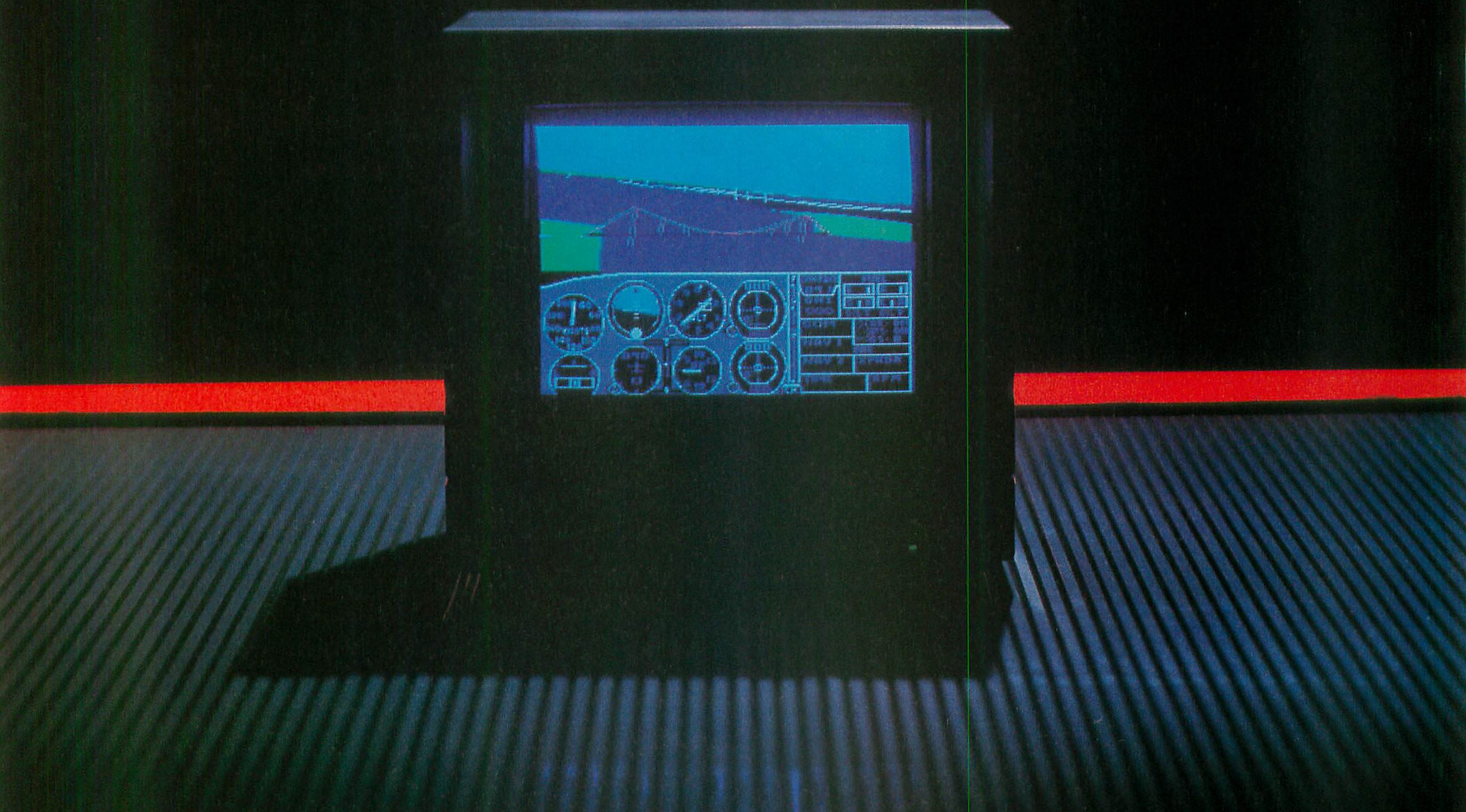
***Antic** considers 24-pin printers like the Star SB-10 the "ultimate" because of their near laser printer resolution. We never claimed that the SB-10 was Epson-compatible. When we decided to use the SB-10 to print our program listings, in-house programmer Patrick Bass created a complete 24-pin font editor/listings printer program, which runs on any Atari 8-bit computer with at least 48K.*

For those who can program, the SB-10 printer manual has plenty of information on sending commands to the printer. If you don't program, you should still be able to teach any word processing software allowing the creation of a "printer driver"—such as AtariWriter or AtariWriter Plus—how to converse with the SB-10. We have not, however, succeeded in getting PaperClip to work with the SB-10.

On the ST, we use the SB-10 for letter quality printouts by simply double-clicking on a text file and then selecting "Print File" from the desktop. Any ASCII file printout should be fine. For printing ST pictures, DEGAS includes an SB-10 printer driver.—ANTIC ED

***Antic** welcomes your feedback, but we regret that the large volume of mail makes it impossible for the Editors to reply to everyone. Although we do respond to as much reader correspondence as time permits, our highest priority must be to publish I/O answers to questions that are meaningful to a substantial number of readers.*

Send letters to: Antic I/O Board, 544 Second Street, San Francisco, CA 94107.



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(704) 525-4423
$199 (Includes 128K and 3 fonts)
CIRCLE **197** ON READER SERVICE CARD

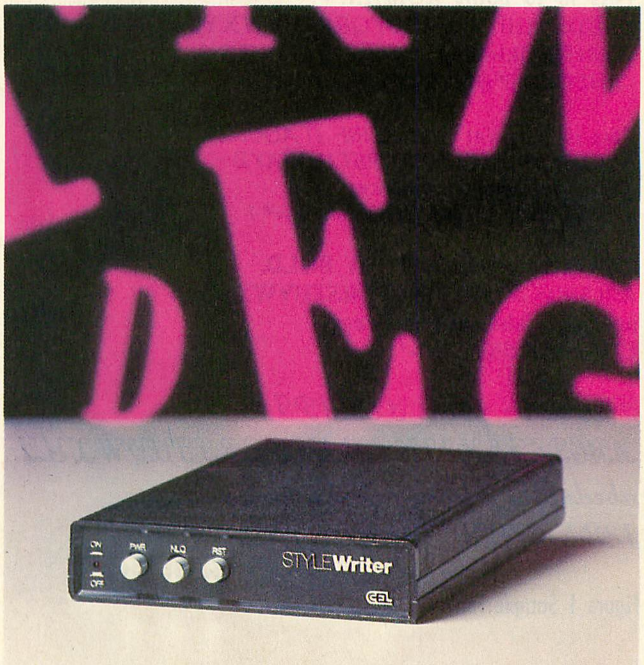
Reviewed by Charles Cherry

The impressive **StyleWriter** is a box about the size of a Hayes modem that gives your dot matrix printer a variety of very high quality fonts. The $199 model also provides a printer buffer of 128K. (You can get smaller-memory units with 8K for $99 or 64K for $169.) *Figure 1* shows the six fonts which came with our review sample. Eleven other fonts are currently available and we can expect more in the future. Font chips cost $13.95 apiece and StyleWriter can hold six chips at a time. The font styles come in several sizes, but each chip can only contain one font in one size.

StyleWriter is actually very easy to use. It comes *preconfigured* for your specific computer and printer, so all you need to do is hook it up and it should work immediately. The print styles are controlled by simple codes that you type into your word processor text. In addition to changing fonts, you can also use a variety of special printing modes (see *Figure 2*). Note that the inverse printing (white on black) did not work very well with the Epson FX-80 I used for this review.

StyleWriter's font chips are proportional typefaces, so your word processor will not be able to control the spacing properly. To overcome this, StyleWriter provides its own commands that control the margins, tabs, centering and justification. There is no command for aligning text from the right margin. All control codes are a simple backslash (\) followed by letters or numbers.

Although it is not mentioned in the generally very good manual, DIP switch three inside the StyleWriter box will change the control character from \ to @. DIP switch four



controls the line feed for the printer. You will need to change that if you move your StyleWriter from an 8-bit Atari to an ST.

StyleWriter achieves its excellent results by taking control of your printer in its graphic mode. Six passes of the printer head are required to print each line. There is a high quality mode which takes 12 passes. All this is obviously time-consuming. However, there is a bypass button which turns StyleWriter into a plain-vanilla buffer, so your printer can work at its normal speed. This makes it a snap to print out draft copies until everything is perfect and then punch in the StyleWriter and go get a sandwich while it prints the final copy.

If you do much printing and a good-looking output is important to you, you should definitely consider invest-

continued on next page

ing in a StyleWriter. It is reasonably priced and will greatly enhance your pages. For most people it will eliminate the need for a daisywheel printer. If you change printers in the future, you can have your StyleWriter reconfigured at the factory. There is currently no charge for this.

It is obvious that a lot of thought, care, and an awful lot of work has gone into developing StyleWriter. My only quibble is wanting even more of what is already there—more fonts built into the box, larger memory buffer, bigger and smaller font sizes, etc. Although the review period is over, I don't want to give back my StyleWriter. I like it a lot.

This is 10 point COURIER.
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890!"#$%&'@(),./?<>-=*+

This is 12 point ELAN.
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890!"#$%&'@(),./?<>-=*+

This is 10 point ROMAN.
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890!"#$%&'@(),./?<>-=*+

This is 10 point SAN SERIF ITALIC.
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890!"#$%&'@(),./?<>-=+*

This is 12 point CENTURY BOLD.
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890!$%&'(),./?-*

This is 16 point SCRIPT.
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890!"#$%&'@(),./?<>-=+*

Figure 1 Sample Fonts

\0\75\
This is 10 point COURIER.
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890!"#$%&'@(),./?<>-=*+

\This is 12 point ELAN.
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890!"#$%&'@(),./?<>-=*+

\3This is 10 point ROMAN.
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890!"#$%&'@(),./?<>-=*+

\This is 10 point SAN SERIF ITALIC.
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890!"#$%&'@(),./?<>-=*+

\5This is 12 point CENTURY BOLD.
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890!"#$%&'@(),./?<>-=*+

\This is 16 point SCRIPT.
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890!"#$%&'@(),./?<>-=*+

Figure 3
StyleWriter File Commands for Figure 1

This is 10 point Courier.

This is 10 point Courier with BOLD switched on.

This is 10 point Courier with HIGHLIGHT switched on.

This is 10 point Courier with HIGH QUALITY PRINTING switched off.

This is 10 point Courier with SINGLE UNDERLINING.

This is 10 point Courier with DOUBLE UNDERLINING.

This is 10 point Courier with CONTINUOUS SINGLE UNDERLINING.

This is 10 point Courier with CONTINUOUS DOUBLE UNDERLINING.

Figure 2 Special Printing Modes

QUIK PIX
White Lion Software
P.O. Box 357
Ridge, NY 11961
(516) 924-6071
$29.95, 48K disk

CIRCLE 192 ON READER SERVICE CARD

Users of AtariWriter, AtariWriter Plus and PaperClip word processors can use **Quik Pix** to put Broderbund's Print Shop Graphics Library pictures into their text printouts. Pictures can be saved as "pix," letterhead—or labels that use the Mail Merge features of these word processors. There are also 12 choices of horizontal borders. Text, graphics and borders are printed in one pass.

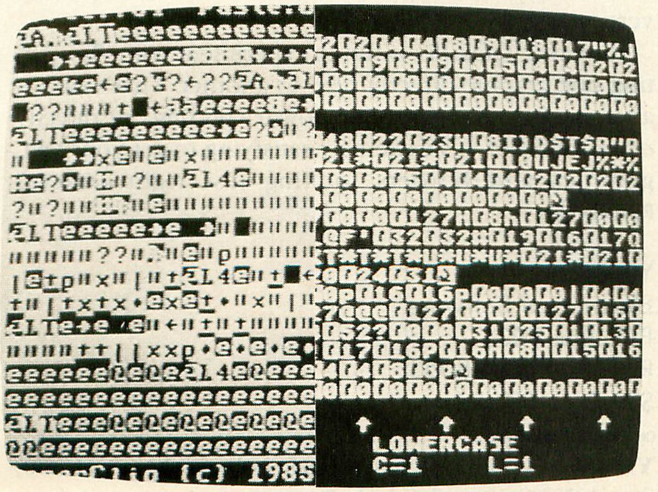
But the great thing about Quik Pix is that you can convert *any* picture—if you convert it to Print Shop format first. And virtually any graphic format for 8-bit Ataris can be converted with Graphics Shop ($19.95, The Catalog, APO157). Also, if you want to use graphics from the *original* Print Shop program disk as well as the Print Shop Graphics Library disks, see the simple DESIGNING LABLES fix in this issue's I/O letters.

Quik Pix is menu-driven and has drop-down windows and single-keystroke commands. The manual is thorough, but not exactly easy to read. If you make a mistake you can't correct, you must press the [ESC] key and start the operation over. The Quik Pix basic process is easy enough to do. But the fancier you want your file to be, the harder you must work.

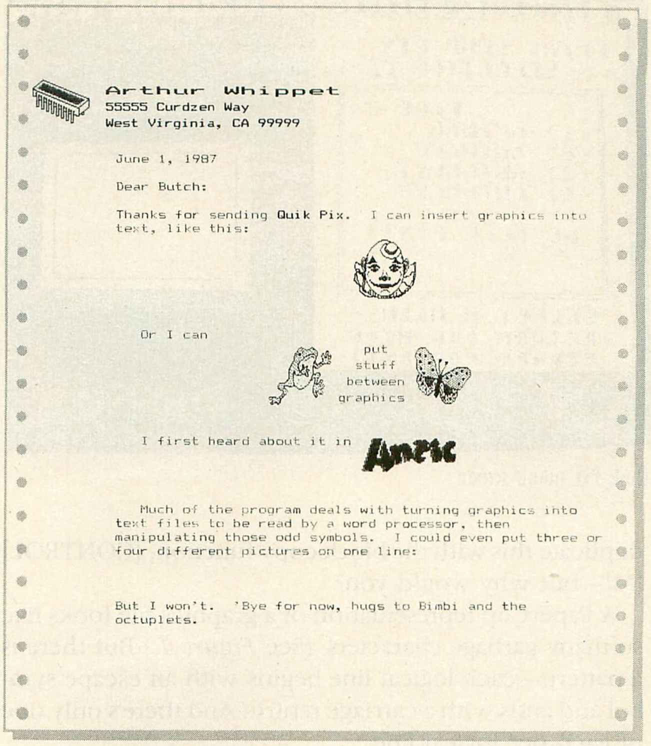
Quik Pix comes in two separate versions that work slightly differently, depending on which word processor they were written for. The remainder of this review will cover each version individually.

QUIK PIX PC

Quik Pix PC uses PaperClip's Include File and Verbatim File commands. Include File lets you chain as many as three files so that they'll print as one. For instance, here



Quik Pix graphics files as seen with PaperClip (left) and AtariWriter Plus.



Arthur Whippet
55555 Curdzen Way
West Virginia, CA 99999

June 1, 1987

Dear Butch:

Thanks for sending Quik Pix. I can insert graphics into text, like this:

Or I can put stuff between graphics

I first heard about it in ANTIC

Much of the program deals with turning graphics into text files to be read by a word processor, then manipulating those odd symbols. I could even put three or four different pictures on one line:

But I won't. 'Bye for now, hugs to Bimbi and the octuplets.

are the steps you might take if you were writing a 12,000-word paper:

1. Since 12,000 words works out to about 48 double-spaced pages and PaperClip's maximum file length is approximately 20 pages, write the document in three sections, saving them as D:DOC.1, D:DOC.2 and D:DOC.3

2. Read DOC.1 to the screen.

3. Instead of having to append the other two files (which won't work anyway), *include* them by adding the following to the end of the document:

[CONTROL] [Z] ID:DOC.2
[CONTROL] [Z] ID:DOC.3

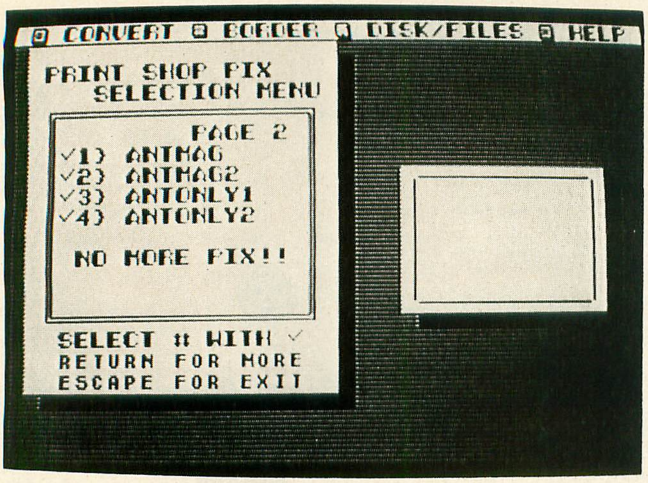
4. If you want to print it later, write DOC.1 back to disk. To do so now, however, simultaneously press [CONTROL] [SHIFT] [ESCAPE] to print. When the printer reaches the end of the document and sees those include commands, DOC.2 and DOC.3 will be read directly from the disk to the printer.

The Verbatim File command does the same thing, but for PaperClip-compatible graphics. It takes data from the disk file—such as B/Graph charts and Micro Illustrator pictures—and prints this verbatim.

Here's where Quik Pix PC comes in. It converts Print Shop Library graphics to *PaperClip* format so that they can be included in text files.

To get the desired effects, however, you must read the converted file into PaperClip and fiddle around. All PaperClip users know that the underlined, crooked arrow pointing left is the carriage return symbol. Few users know that the *inverse* carriage return is the *escape* symbol—which you can't create by typing in PaperClip. True, you can

continued on next page



Quik Pix menu screen.

duplicate this with the block copy function, [CONTROL] [M]—but why would you?

A PaperClip representation of a graphics file looks like so many garbage characters. (See *Figure 1*.) But there is a pattern—each logical line begins with an escape symbol and ends with a carriage return. And there's only one of each per logical line.

Unless you change the file, the graphic will be printed in column 1 on your paper. However, if you put 35 spaces before each escape symbol, the printer will center the picture, as it did with the clown in the sample letter.

PC MULTI-PIX

If you want more than one graphic on one line, you really have your work cut out for you, although PaperClip's two windows make it easier. In *Figure 1*, to get the frog, butterfly and text on the same line, call the frog file into window 1 and the butterfly file into window 2. Then:

1. Number each line, adding the numbers *before* the escape symbol. In the top window you might number the lines 111, 222, etc., using 1111, 2222, etc. in the bottom. The lines with three digits would come before the ones with four, making things easier.
2. Go to line 1111 in window 2 and use [SHIFT] [DELETE] to put each screen line of that logical line into the paste buffer.
3. Hop back up to window 1, put the cursor on 222 and simultaneously press [CONTROL] [SHIFT] [P] to put line 1111 under line 111.
4. Delete the carriage return in line 111 and add 10 spaces.
5. Press [CONTROL] [SHIFT] [I] to get into the overwrite mode and center the word "put" in those 10 spaces.
6. Delete the 111 and 1111. Now the first logical line is complete.
7. Repeat steps 2-6, adding words where appropriate. The new picture file is ready, so save it to disk.

If this sounds like a hassle, that's because it is. But it's easy to get used to, although plenty challenging at first. Expect a lot of trial and error before you get what you want.

The **Antic** Magazine graphic in *Figure 1* came from the Picture Plus disk ($19.95, The Catalog, APO179) and was in Micro Illustrator format. Graphics Shop was needed to convert the picture to Print Shop format. However, since the graphic was directly in the center of the screen on a white background, we didn't want to convert the entire screen.

Converting part of a picture entails putting a frame around the area to be captured. While this feature works well, it isn't terribly flexible—you can't shrink or expand the frame to fit the graphic—so we had to make two files. It wasn't easy to place the frame so as not to duplicate parts of the picture. Then these files had to be converted to PaperClip format with Quik Pix PC.

The name and address at the top of *Figure 1* were made with the letterhead option. A label would look about the same.

ATARIWRITER QUIK PIX

Neither AtariWriter nor AtariWriter+ has a verbatim command, but you can load and print a converted graphics file right away. Graphics can be converted in either normal or compressed mode in this version of Quik Pix.

The compressed mode is used if a picture is too wide for AtariWriter Plus. Quik Pix documentation points out that AtariWriter Plus is slightly *more* limiting than AtariWriter in terms of graphics, and if you try to print a non-compressed picture the computer might lock up. If this happens, just press [RESET]—everything in memory will remain there.

PaperClip graphics files are easier to interpret than AtariWriter files—where the escape character is just represented by a 27. The other codes are also represented in decimal form. This may sound easier to deal with than those odd PaperClip symbols, but AtariWriter files are longer, and it's harder to see where one logical line ends and another begins.

With the Merge File command, [OPTION] [L], you can get several pictures into one file, but trying to put more than one on a line is even harder than with the PaperClip version.

However, Quik Pix is fun to experiment with. Try putting one graphic directly next to another. That's easy—after you figure out how. But now try putting one directly *above* another. It's extremely satisfying to get your text, graphics and borders looking just right.—GREGG PEARLMAN

YEMACYB
Electronical Software
P.O. Box 8035
Rochester, MI 48063
$21.95, 48K disk
CIRCLE 193 ON READER SERVICE CARD

YEMACYB prints microscreens in color on Epson MX/80, Star 10X/SG-10 and C.Itoh Prowriter printers and compatibles. The program requires four colored ribbons, yellow, cyan, magenta and black. Printing takes four passes,



Four-pass color printout on standard one-color dot-matrix printer with YEMACYB.

and you must change the ribbon for each pass. You can order the program with the ribbons for $18 to $26 more, depending on your printer.

YEMACYB does its job well. I tested it with Star's Gemini 10X and the results were better than with most color printers. YEMACYB maintains a palette that defines the blend for each of the Atari's 128 colors. A separate program lets you change the palette if the printout doesn't match your screen exactly.

YEMACYB supports Graphics 7 and Graphics 7 1/2 (ANTIC mode E) screens in uncompressed 62-sector format. It also supports display list interrupts (DLIs). You can change any or all colors at every scan line. The resulting picture can be printed in only one size—my printer printed it sideways, 6 3/8×8 1/4 inches.

On the downside, the program is not easy to use. The process of backing up the printer and aligning the page is inefficient even at the best of times. This program does nothing to help and there's a bug in the alignment routine. The DLI feature is user-hostile. You can't even see the picture as you are changing it. All of this aggravated by a poor manual.

On balance, YEMACYB is worth having. Nothing else does what it does, and the results are impressive. I just hope that future versions improve the user interface.—CHARLES CHERRY

MAGNIPRINT II+
Alpha Systems
4435 Maplepark Road
Stow, Ohio 44224
(216) 374-7469
$24.95, 48K disk

CIRCLE **194** ON READER SERVICE CARD

Magniprint II+ has been around for quite a while and won many satisfied users. Version 3 now adds four different text sizes and compatibility with Typesetter icons to an already impressive list of capabilities. Although it does not do everything (such as mirror images for T-shirts), Magniprint II+, Version 3 will fulfill most of your printing needs.

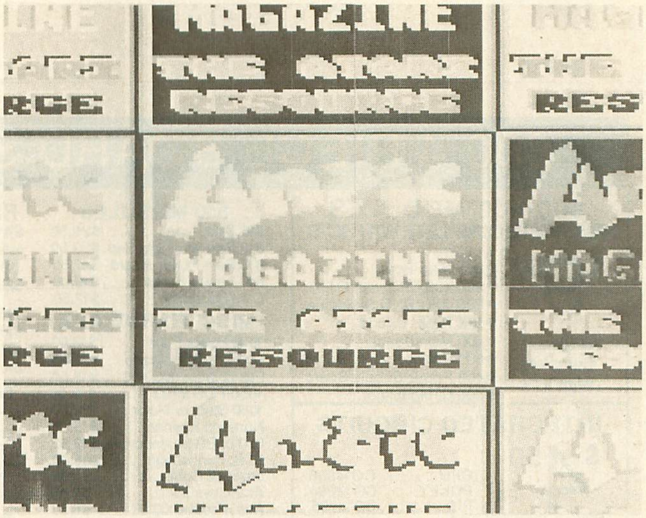
Magniprint II+ can take a microscreen in any mode and print it in several sizes, normal or sideways, with up to 16 gray levels. It can also produce gigantic multi-page poster printouts. Magniprint II+ produces the best quality picture your printer can deliver.

This program loads a picture in any format—even Print Shop—and lets you touch up the drawing, change the colors, assign a gray scale and add text using normal or custom fonts. Large text has vertical lines. Printing is in two full-screen sizes—three, if you count the convenient Quick Print previewer. Larger sizes can be printed in sections which you can designate, within limits.

Special features include a lister, which reproduces text files exactly as they appear on screen, including inverse and graphic characters—ideal for listing BASIC programs. You can also fine-tune the printer's line-feed to preserve the aspect ratio of your picture (so circles come out round instead of oval).

Magniprint II+'s best features are its excellent GTIA 16-shade printouts and the remarkable (yet easy) gigantic, multi-page posters. Disappointments include the slow "multi-load" operation and the separate conversion process needed to use most picture formats.

Magniprint II+ supports Epson, Panasonic, C. Itoh, NEC, and Star dot-matrix printers and compatibles.—CHARLES CHERRY



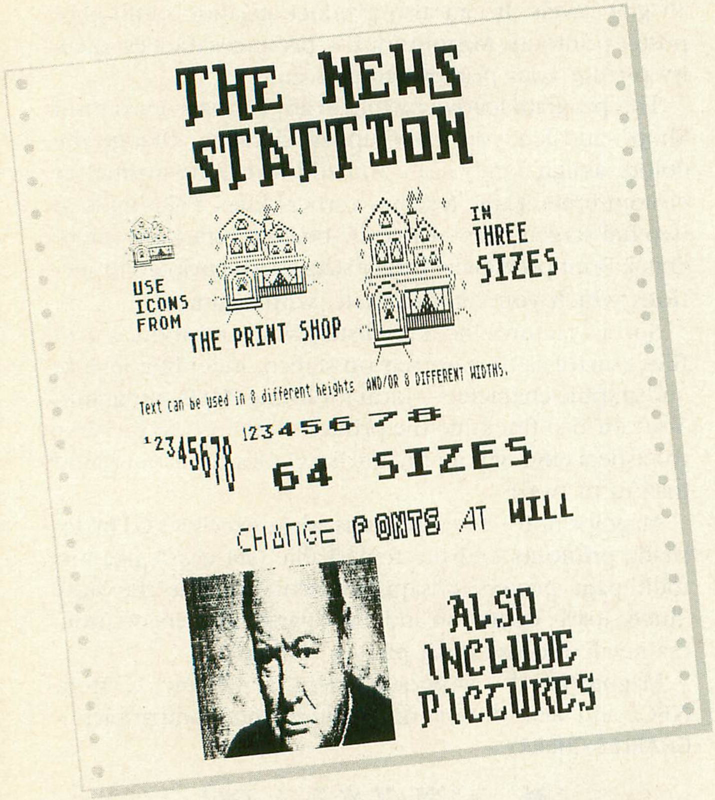
NEWS STATION
Reeve Software
29W150 Old Farm Lane
Warrenville, IL 60555
(312) 393-2317
$29.95, 48K disk

CIRCLE **195** ON READER SERVICE CARD

Here's another attempt to bring desktop publishing to the 8-bit Atari. As always, the problem is not enough memory. You can't put a whole page in the computer and still have room for a program.

continued on next page

Text-graphics printout with News Station.



News Station divides the page into eight "plates" which must each be composed and saved to disk individually. Once all eight are created and saved, the page is printed. The plates are printed in this arrangement:

PLATE 1	PLATE 2
PLATE 3	PLATE 4
PLATE 5	PLATE 6
PLATE 7	PLATE 8

This works fine for two-column printouts, but full-page composing is difficult.

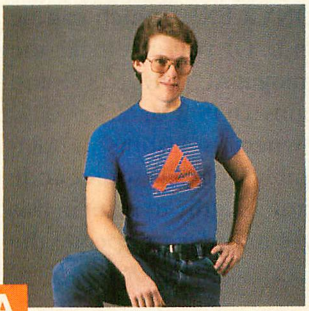
You can typeset your text with custom 8×8 character sets in 64 sizes. Five fonts are provided, but there is no font editor. You can draw freehand with a joystick or touch tablet, or load pictures, Print Shop icons and *short* text files.

But with 64 text sizes, News Station is an ideal tool for putting lettering into a picture. Also, the plate concept makes it easy to replicate an image eight times on a page. However, you might find it too restricted for serious typesetting and printing.—CHARLES CHERRY

IF YOU'D ENJOY SEEING MORE ARTICLES LIKE THIS ONE, CIRCLE **196** ON THE READER SERVICE CARD.



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A

T-SHIRTS. This Official Antic T-Shirt is worn by many of our staff. Made of cotton and polyester to hold their shape and good looks. Blue only. S–M–L–XL



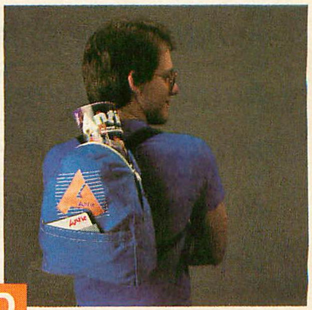
B

SWEATSHIRTS. For the cooler days this sturdy sweatshirt is made of cotton and acrylic for warm comfort and perfect fit. Blue only. S–M–L–XL



C

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ASCII Art Converter

"Printer pictures" go hi-res

BY PAUL TUPACZEWSKI

Thousands of "character art" pictures can be found online, free for the downloading. ASCII Art Converter transfers this visual treasure trove into Atari high-resolution graphics formats—so you can enhance the pictures with your favorite paint software. This BASIC program works on 8-bit Atari computers with a minimum of 48K memory and a disk drive.

If you have ever have logged onto a bulletin board—especially a non-Atari BBS—you may have noticed sections of the board offering something called "printer art" or "ASCII character art." You can download these "picture" files and put them into your word processor to make hard copies with any type of printer. Type GO ARTSIG when you log onto CompuServe and you'll find a vast storehouse of ASCII art files.

ASCII art works by taking various characters—X, M, 9, etc.—and combining them in patterns to make pictures. When you stand up close, the pictures don't look like anything except a jumble of letters and numbers. But when you stand back, you'll see a detailed image—perhaps Abraham Lincoln or Marilyn Monroe. For users of most personal computers, this is a satisfactory online graphic compromise. But with the powerful graphics of your 8-bit Atari and this ASCII Art Converter software, you can do a lot better.

ASCII Art Converter speedily translates printer art files into the Atari's high-resolution graphics modes. After conversion, your picture will have four shades of gray—and you can then enhance this image with any popular Atari paint program. (Rapid Graphics Converter *from the November 1985* ***Antic*** *enables you to convert graphics files between all paint software formats.*—ANTIC ED)

Get started by typing in Listing 1, ARTCONVR.BAS. Check it with TYPO II and SAVE a copy before you RUN it. When RUN, it creates the actual ASCII Art Converter machine language file, ARTCONVR.EXE, which can be loaded from DOS using option L. Or you can make the converter self-loading by renaming it AUTORUN.SYS and putting it on a disk that contains DOS 2 or 2.5.

A bonus for Antic Disk owners is Listing 2, ARTCONVR.M65, the MAC/65 assembly language source code for the ASCII Converter. It was too lengthy to print in this issue. You do *not* need Listing 2 in order to operate the ASCII Art Converter.

CONVERTER COMMANDS

Following are the main menu commands you'll see when you load the converter:

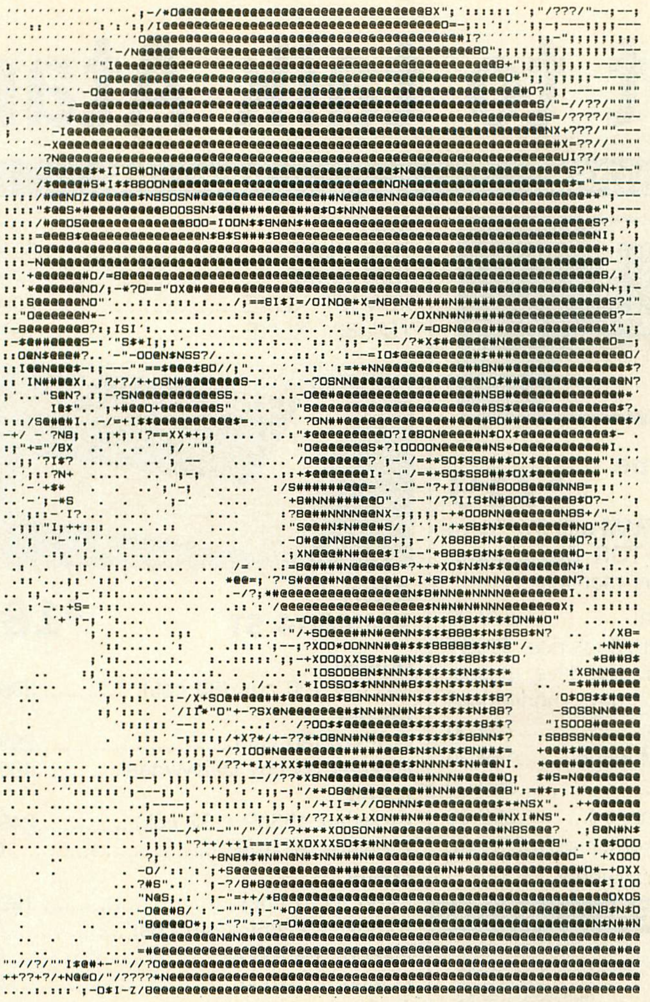
[C]olumn number— Most printer art files are meant for 80-column printers, but some are in compressed 132-column mode. [C] toggles between 80-columns and 132-columns.

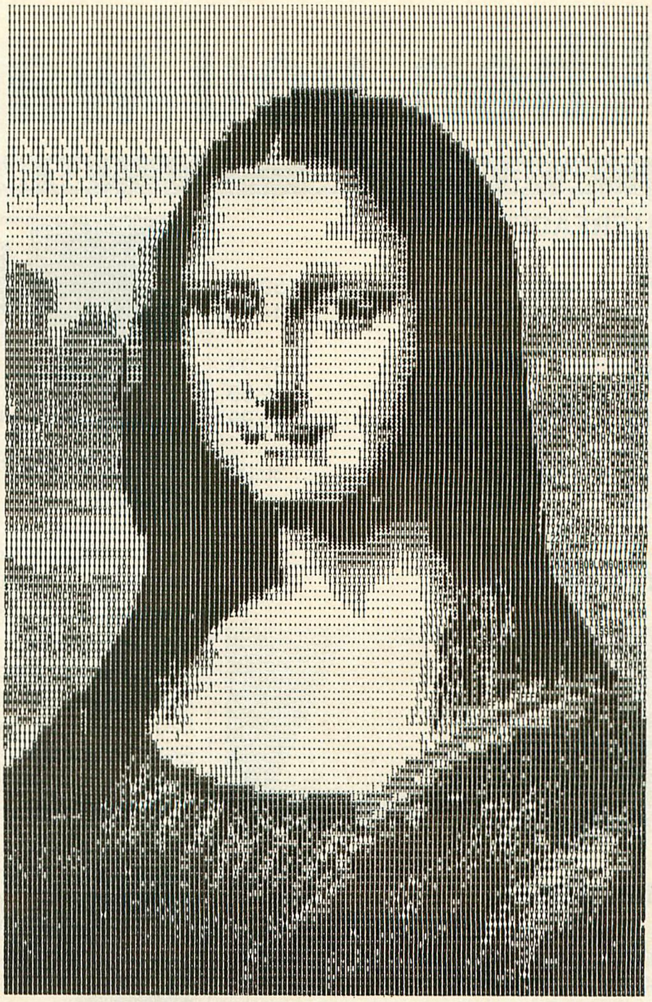
[L]oad file—Here is where you enter the printer art filename.

[D]rive default number—Choose any number from 1 to 8. Using a RAMdisk (D8:) speeds conversion greatly.

[P]osition of picture—When printed, some art files are supposed to be looked at vertically, others horizontally. This option rotates an arrow that specifies the *top* of the image.

[G]raphics mode—This option is handy for "compress-





CompuServe's ARTSIG library was the source of this ASCII character art. "Spock" by Ron McDowell is 80 columns. "Monalisa" by David Horn is a 132-column picture.

ing" 132-column pictures. Most pictures should be viewed in Graphics 7, but some compressed 132-column pictures look better in Graphics 7+.

[SPACEBAR]—Press this to start the process when everything is set for conversion. You'll then see the prompt:

[U]se defaults or [E]dit your own?

If you press [U], the program immediately starts the conversion, using a built-in "character shade" code chart, where different characters represent different pixel shades.

If you press [E], the program searches your entire printer art file for examples of each different character byte and displays those examples at the top of the screen. (This is where RAMdisk speed comes in *really* handy.) You are then prompted to give each character a shade value, with 0 being white, 1 being light gray, 2 being dark gray and 3 being black.

The character marked by the arrow is the one for which you enter the value. Generally, the bigger the character, the darker the value. For example, commas and periods might normally be light gray, while M's and cross-hatches (#) might be black. Spaces should be white. If you change your mind about a color value, the [DELETE] key moves the cursor back and the [SPACEBAR] advances it. When you're happy with the values you've entered, press [RETURN].

SCREEN CONVERSION

When your picture appears on the screen, if it's too large it wraps to a second screen. (If it's still too large, it wraps back and overwrites the first screen.) When you're finished, pressing any key toggles between the two screens.

Pressing [OPTION] brings up another menu. If you don't like the picture, press [4] to reRUN the entire program. To look at the picture again, press [START].

If you like the picture, call up the screen you want to save and type [3], then enter a filename. Press [1] to save a GRAPHICS 7 screen or [2] to save a GRAPHICS 7+ screen. Both types are saved in the 62-sector Micro-Painter format, and the program automatically expands GRAPHICS 7 pictures to fit Micro-Painter GRAPHICS 7+ screens.

Boonton, NJ high school student Paul Tupaczewski wrote Bomb Squad *(Antic, June 1986). He says there's a gold mine of art files on local bulletin boards.*

Listing on page 89

When you want to talk Atari

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Supra
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800 XL Package (1050 Drive, 1025 Printer, Joystick & Diskettes)....................329.00

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Anchor
VM520 300/1200 Direct Connect (ST)129.00
Volksmodem 1200....................99.99
Supra
1200 AT....................139.00
1200 ST....................139.00

ST HARDWARE



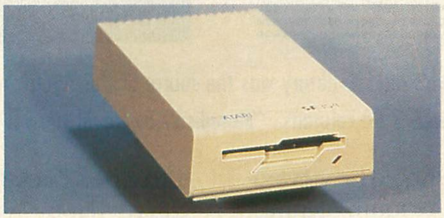
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520 RGB/Color System....................769.00
SM124 Monochrome Monitor....................159.00
SM1224 Color Monitor....................329.00
1040 Computer (no monitor)....................589.00

Call on the new Atari: 520ST FM/PC compatible/Laser Printer/Daisywheel.

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Atari
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AA314 DS/DD Disk (ST)....................219.00
Indus
GT Disk Drive (XL/XE)....................179.00
Supra
20 Meg Hard Drive (XL/XE)....................679.00
20 Meg Hard Drive (ST)....................549.00
30 Meg Hard Drive (ST)....................759.00

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Atari
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XMM801 XL/XE....................199.00



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MSP-10 (80 col.)....................289.00
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Prowriter 1550P (132 col.)....................249.00
Prowriter 8510SP....................Call
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6000 Letter Quality....................189.00
6100 10 cps Daisywheel....................369.00
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ELF360 20 cps....................389.00
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Pinwriter 560-660-760....................Call
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Okimate 20....................129.00
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ML-292, ML-293....................Call
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KX-1091i 180 cps 132 col....................299.00
Star Micronics
NX-10 120 cps 80 col....................209.00
NX-15 120 cps 132 col....................379.00
Toshiba
P321 216 cps 24 pin....................479.00

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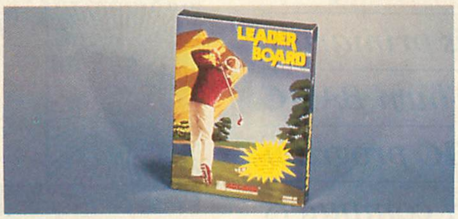


AtariWriter Plus $34.99

ACCESSORIES

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MF1-DDM SS/DD 3½"	12.49
MF2-DDM DS/DD 3½"	18.49
Sony	
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Allsop Disk Holders	
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Emerald	39.99
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ST SOFTWARE

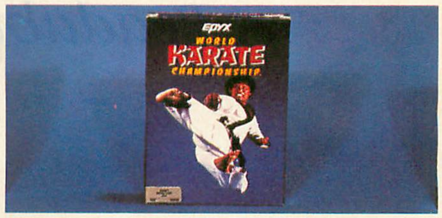


Access Leaderboard Golf $24.99

Activision	
Music Studio	34.99
Antic	
Cad 3-D	30.99
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Star Raiders	19.99
Batteries Included	
Degas Elite	48.99
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Easy 80

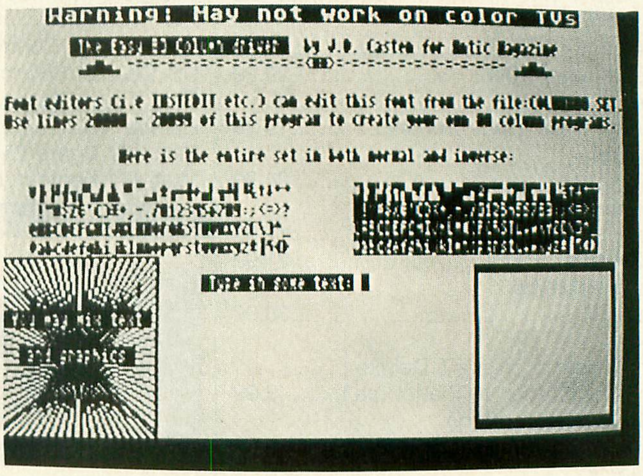
Readable software 80-column text

BY J.D. CASTEN

This versatile subroutine displays 80 columns of readable text (even combined with pictures too) on a Graphics 8 screen. Easy 80 includes an impressive demonstration of what the 80-column display can do. But this subroutine is primarilly meant for insertion in your own BASIC programs. Easy 80 is a BASIC program that works on all 8-bit Atari computers of any memory size, with disk or cassette. However, Easy 80 text is not likely to be too readable on a television set or on some color monitors.

A major limitation of 8-bit Atari text is the 40-column display, which greatly limits the amount of information that can be shown at one time and hampers translation of programs from 80-column computers to the Atari. Easy 80 provides an efficient, flexible access to 80 readable columns with no additional hardware. How much use you get from Easy 80 depends on your needs, programming expertise and imagination.

(Also Note: Readability of Easy 80 text depends largely on the quality of your video display. Standard television sets don't have high enough resolution to produce good details. For best results with a color monitor, turn down your Color and Tint controls as low as they will



go. Adjust any other controls that will make your color screen resemble a monochrome display.—ANTIC ED*)*

GETTING STARTED

Type in Listing 1, EASY80.BAS, check it with TYPO II and SAVE a copy before you RUN it. The actual 80-column subroutine consists of lines 20000-20199 within the Easy 80 demonstration program.

Next, type in Listing 2, CHARMAKE.BAS, check it with TYPO II and SAVE as before. When RUN, Listing 2 creates a file called COLUMN80.SET. This is the Easy 80 character set, similar to character sets made with *Ultrafont* (**Antic**, August 1986) or Envision ($19.95, The Catalog, AP0185).

You don't need a font editor program to use Easy 80, but with a font editor you can alter the COLUMN80.SET file created by Listing 2. Just operate your font editor with the COLUMN80.SET file like you would for any other character set file.

To use the 80-column subroutine in your own programs, simply LIST lines 20000-20199 to a separate disk file, then

ENTER them into your BASIC program.

PROGRAM TAKE-APART

The 80-column subroutine has two main parts. The initializing routine starts at line 20000. GOSUB here at the beginning of your program. The PRINT subroutine is at line 20099. These routines use the following variables:

E80$— contains the machine language program for the 80-column driver.

T80$—contains the text to be printed.

CHBAS—the location of the 80-column character set in memory. This can be altered to any location divisible by 1K (1024).

X80—the horizontal coordinate of the text to be printed; can be from 0 to 79.

Tired of waiting for a readable 80-column word processor for the 8-bit Atari? Then write one yourself with help from Easy 80. Even the Atari [CONTROL] characters will appear as legible as in standard 40-column mode.

Y80—the vertical coordinate of the text to be printed; can be from 0 to 23.

To use the PRINT routine, set the variables T80$, X80 and Y80, and GOSUB to line 20199.

The demonstration program shows some effective ways to use the 80-column routine. Hopefully you will find a good use for Easy 80—whether you're just showing off the demo or writing an 80-column word processor.

*With Easy 80, J.D. Casten departs from the chase-and-shoot maze games which made him an **Antic** programming favorite. Longtime readers of this magazine will be familiar with Casten games such as* Risky Rescue *(April 1984),* Biffdrop *(December 1984) and* Rebound *(January 1987).*

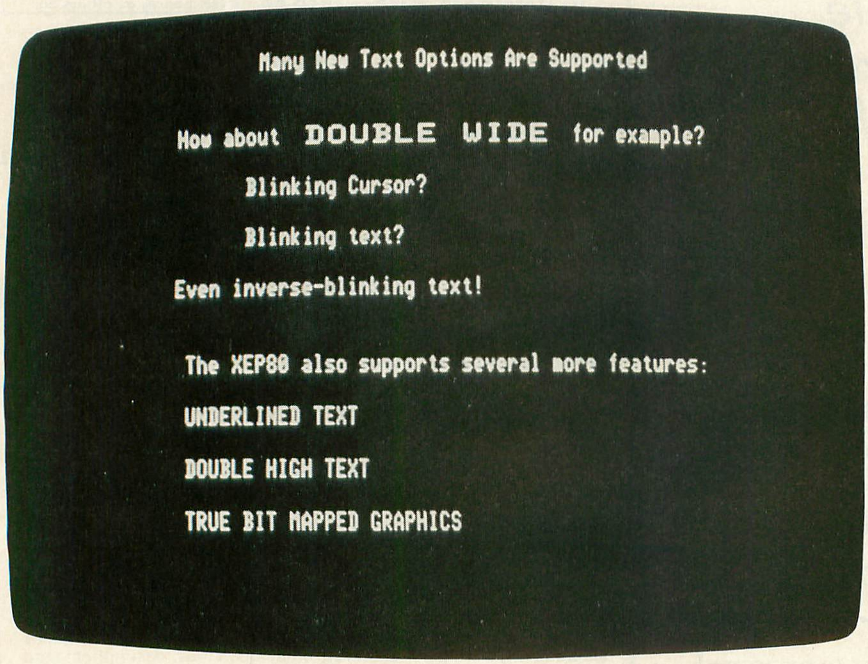
FOR MORE ARTICLES LIKE THIS, CIRCLE 153 ON READER SERVICE CARD.

Listing on page 81

Miracle Box From Atari

True 80-column text at last

BY CHARLES JACKSON, ANTIC TECHNICAL EDITOR



It's here.

Arriving at **Antic** just as we were about to go to press, the long-promised **XEP80** 80-column box is being manufactured at the Atari Corp.'s Taiwan manufacturing center and should be available in stores for $79.95 by the time you read this.

The XEP80 displays 80 columns and 24 rows of readable text on your screen. On monochrome monitors, this text is razor-sharp. It's also quite readable on a color monitor, though naturally the characters are smaller than standard 40-column Atari text. Either way, the XEP80 is far superior to any software-only commercial products that produce an 80-column display.

COMPATIBLE SOFTWARE

According to John Skruch, Atari's Associate Director for Software, **AtariWriter 80**—a new 80-column upgrade of the AtariWriter Plus word processor—was undergoing final testing at deadline and should also be in the stores when the XEP80 arrives in June 1987.

AtariWriter 80 and a new 80-column, single-density version of Atari's **Silent Butler** personal finance program will be the first commercial software that runs on the XEP80. However, early prototype versions of the XEP80 box were sent to major publishers of 8-bit software—such as Batteries Included, Broderbund, XLEnt and OSS—with the expectation that existing products will soon be updated for 80 columns.

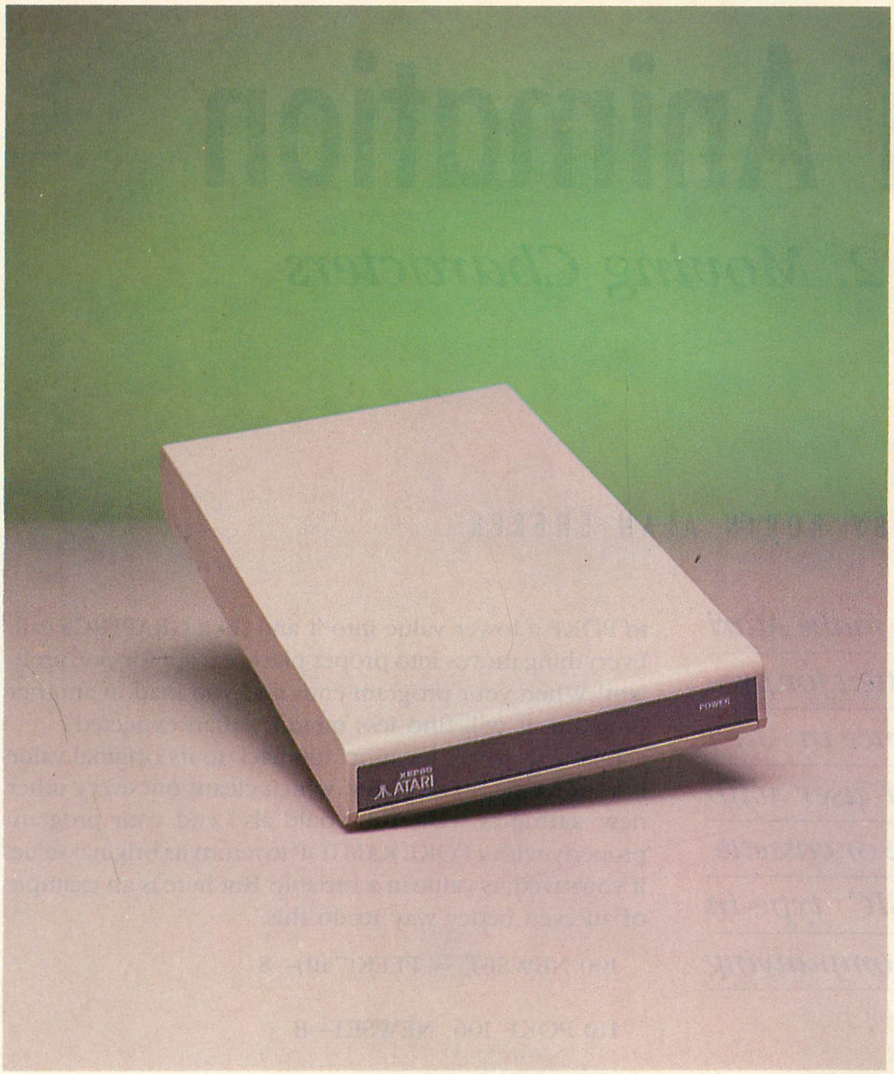
Inexpensive 80-column trade-up prices for users of the existing AtariWriter Plus and Silent Butler will be offered by Atari, according to Skruch. But no prices for the software have been set as of this writing.

USING XEP80

The XEP80 is about the size of a 1030 modem (5 3/8×9 1/4×1-3/8 inches) and weighs in at just two pounds. It can easily fit atop your disk drive.

The XEP80 connects to your Atari through either joystick port 1 or 2. An XL/XE RCA-jack video cable carries the signal from the back of the XEP80 to your monitor. (Atari says the XEP80 display will not be satisfactory on a televison set.)

Keeping the system running is a small 9-volt power supply, the same power unit used with the 2600 videogame system and the still-awaited Atari 1200-baud moderm. Note: The



power supply that came with our prototype XEP80 tended to grow unusually hot.

The XEP80 also includes a parallel printer port that uses the same 25-pin cable as the ST. If you hold down the [SELECT] key when you boot your computer, the XEP80 will serve only as a parallel printer interface—without turning on the 80-column display.

UTILITIES AND DEMOS

The disk that comes with the XEP80 contains the AUTORUN.SYS file which installs the handler (which is only about 200 bytes). Commented MAC/65-compatible source code for the handler is also included. Atari's Lane Winner is credited as the main designer of the XEP80 system.

The disk also features a number of impressive demonstration programs written in BASIC and assembly language, as well as detailed documentation and utility software for inserting 80-column handler rountines into your own programs.

The XEP80 handler introduces several new commands to Atari BASIC. These take the form of XIO statements which:

- Invert the screen colors (default is white text on a black background).
- Enable underlining.
- Produce a blinking cursor.
- Mix double-width or double-height text with standard-size text.
- Mix blinking text (any width or height) with standard text.
- Enable character-by-character horizontal scrolling with a POSITION statement and an XIO statement.

The XEP80 is immediately compatible with all software that supports E: calls—such as Atari BASIC (versions A, B and C) and Atari DOS 2.5. During our tests, the XEP80 didn't work with DOS 2.0.

GRAPHICS

Built into the XEP80 is 8K of static RAM, which is used as a screen storage buffer to operate the display faster. The XEP80 has two complete character sets built in, the standard XL/XE special character set and Atari's international character set.

The XEP80 can draw high-resolution bit-mapped graphics covering as much as half the screen. However, the 80-column drawing routines are much slower than standard 40-column drawing. It took five minutes to draw and fill a golfball-sized circle in Graphics 8.

Drawing isn't simple either. The PLOT and DRAWTO statements are not supported and text windows are not allowed. If your program crashes in the middle of one of these lengthy and complicated bit-map operations, the display remains in bit-mapped mode. You must reboot and start again.

SUMMARY

If you're serious about an 80-column display, the XEP80 won't disappoint you. The text is outstanding on monochrome monitors and acceptably readable on composite color monitors. Beginning and intermediate BASIC programmers will want to explore new ways to use the XEP80's additional XIO commands. Advanced BASIC and assembly language programmers will enjoy adapting the XEP80 handler to their favorite business software, word processor or telecommunications program. ▲

XEP80
(80-column card)
Atari Corp.
1196 Borregas Avenue
Sunnyvale,CA 94086
(408) 745-2000
$79.95, 16K disk

FOR MORE ARTICLES LIKE THIS, CIRCLE **168** ON READER SERVICE CARD.

Atari Animation

Lesson 2: Moving Characters

BY ROBIN ALAN SHERER

This series teaches you how to make Atari 8-bit graphics move. It is written for programmers with some experience in Atari BASIC. But any 8-bit Atari user with minimum 32K memory, disk or cassette, can enjoy the short BASIC type-in graphics demonstrations accompanying each lesson.

Last month we drew the shape of a haunted house. Now we will begin to put animated characters into the picture.

First we must find a safe place for the new character set we'll create. You must always protect data by placing it somewhere that won't be written over. Both BASIC and the operating system are constantly moving code all over the place. Fortunately it's easy to create safe havens.

MEMTOP AND RAMTOP

Memory use limitation is controlled by RAMTOP at location 106 and MEMTOP at locations 741 and 742. These locations hold values representing 256-byte pages of memory. By changing the values at these locations, we can fool the computer into thinking that some of its unused memory is already full.

See *Figure 1.* RAMTOP holds the highest page number of free RAM memory available for use. The operating system won't use memory above this number. By lowering the number, you can use the RAM between the original number and the new number without disturbance. RAMTOP is easier to use than MEMTOP, since you just have to POKE a lower value into it and do a GRAPHICS call. Everything moves into proper place, except for one problem! When your program ends and you load in another program, it will find less memory than expected.

One way to get location 106 back to its original value is to press the [RESET] key, which cleans out every other new setting as well. You could also end your program properly with a POKE RAMTOP to return its original value, if you saved its value in a variable. But here is an example of an even better way to do this:

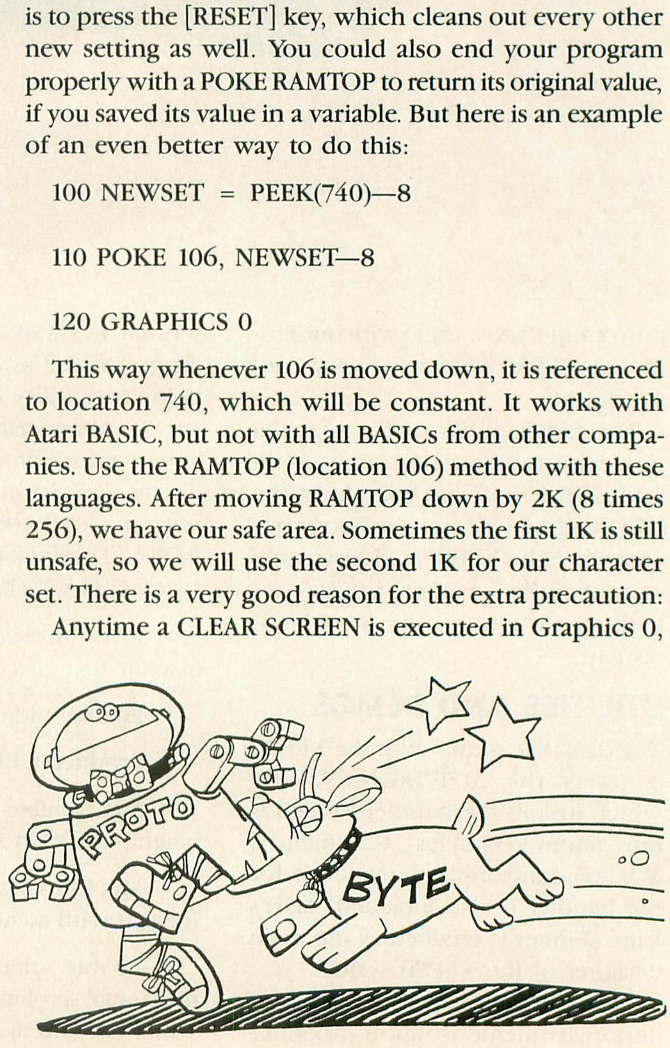
```
100 NEWSET = PEEK(740)—8

110 POKE 106, NEWSET—8

120 GRAPHICS 0
```

This way whenever 106 is moved down, it is referenced to location 740, which will be constant. It works with Atari BASIC, but not with all BASICs from other companies. Use the RAMTOP (location 106) method with these languages. After moving RAMTOP down by 2K (8 times 256), we have our safe area. Sometimes the first 1K is still unsafe, so we will use the second 1K for our character set. There is a very good reason for the extra precaution:

Anytime a CLEAR SCREEN is executed in Graphics 0,



the first 64 bytes of RAM above RAMTOP are CLEARed! Whenever you make a GRAPHICS call which also causes a CLEAR SCREEN, the first eight characters of your character set will disappear.

This situation is even worse if you allow your screen to scroll up. Did you ever wonder where the old text goes when you LIST and the text flows up the screen? Yep, into the 800 memory locations above RAMTOP. That number 800 comes from the 20 lines of the screen times 40 characters per line.

But why start the new character set 1,024 bytes up in memory, instead of 800? The computer requires a memory location that can be divided by 1,024 for the start of the character set when using Graphics 0, and one that can be divided by 512 when using GRAPHICS 1 or 2. This means either two or four pages at a time.

MOVING CHARACTERS

Now we are ready to start moving an animated character into the HOUSE01.BAS program from last month. We'll need to modify three characters. But first we must move the regular character set from ROM into RAM, so we can work on it:

```
130 CHSET  =  57344

140 FOR BYTE  =  0 TO 1023

150 POKE NEWSET*256+BYTE, PEEK(CHSET+BYTE)

160 NEXT BYTE
```

Wow, it takes a long time to move 1024 bytes, doesn't it? What we need is a machine language routine to do it faster. The machine language routines in these lessons are written so that you can use them in your own BASIC programs—even if do not understand machine language.

But we do need to know how to move machine language routines into our BASIC programs. There are a number of ways to do this, some quite complex. Below is MOVMEM, a simple machine language method translated into BASIC:

```
10 DIM MM$(41)

20 FOR CHAR=1 TO 41

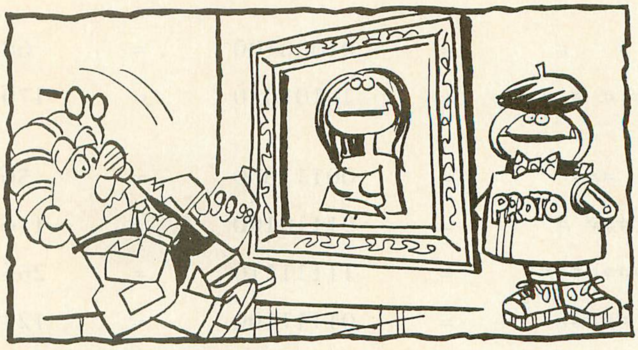
30 READ CODE

40 MM$(CHAR,CHAR)=CHR$(CODE)

50 NEXT CHAR

60 DATA 104,104,133,204,104,133,203
,104,133,206,104

70 DATA 133,205,104,170,160,0,138
,208,2,104,168,177
```




```
90 DATA 206,202,224,255,208,233,96

130 CHSET=57344

140 X=USR(ADR(MM$),CHSET,SETNEW*256,1024)
```

Now the Atari character set is in the RAM area we protected. You can verify this by changing CHBAS:

```
POKE 756,NEWSET
```

SHAPE CHANGING

Next you decide which characters to change into new shapes. There is no point in messing up any of the regular letters, so let's change [CONTROL] [A] through [CONTROL] [C]. These are normally Atari graphics characters and have ATASCII values of one through three.

However, as stated in last month's lesson, the character set has a different order than ATASCII. Look at the chart in your BASIC reference guide. (See Recommended Books at end of article.) You'll see that our three characters have INTERNAL values of 65 to 67.

Now for the new shapes. Meet my favorite character—Prototype! Here are three views (with data) for good old Proto:

```
  ###      =   00111000   =   56
 # ###     =   01011100   =   92
#######    =   11111110   =  254
 #####     =   01111100   =  124
 #   #     =   01000100   =   68
 #  # #    =   01001010   =   74
 #         =   01000000   =   64
# #        =   10100000   =  160

  ###      =   00111000   =   56
 ## ##     =   01101100   =  108
#######    =   11111110   =  254
 #####     =   01111100   =  124
 #   #     =   01000100   =   68
 #   #     =   01000100   =   68
```

continued on next page

```
 #   #     =   01000100   =    68
# # # #    =   10101010   =   170
  ###      =   00111000   =    56
 ### #     =   01110100   =   116
#######    =   11111110   =   254
 #####     =   01111100   =   124
 #   #     =   01000100   =    68
# #  #     =   10100100   =   164
     #     =   00000100   =     4
    # #    =   00001010   =    10
```

Now here is the code to make Proto move.

```
170 SET = NEWSET*256

180 FOR CHAR=65 TO 67

190 FOR BYTE = 0 TO 7

200 READ DAT

210 POKE SET+CHAR*8+BYTE,DAT

220 NEXT BYTE

230 NEXT CHAR

1000 DATA 56,92,254,124,68,74,64,160

1010 DATA 56,108,254,124,68,68,68,170

1020 DATA 56,116,254,124,68,164,4,10
```

Our character set is now all ready to use, so let's tell the computer where it is:

```
240 POKE 756, NEWSET
```

And let's use it:

```
250 POKE 752, 1

260 POSITION 10,4

270 PRINT CHR$(4)

280 RESTORE 1100

290 FOR LP=1 TO 3

300 READ CHAR

310 POSITION 10,2

320 PRINT CHR$(CHAR)

330 FOR WAIT = 1 TO 2

340 NEXT WAIT

350 NEXT LP

360 GOTO 270

1100 DATA 1,2,3
```

Notice that all we have to do to animate Proto is print the different versions one after another in the same place, with a small delay between each of them to slow things down so we can see each picture. This technique is used by a lot of programs to do simple (and sometimes complex) animation. For example, the aliens in Space Invaders are created using a redefined character set.

Make the following changes to the program if you want to try the character set in Graphics 1 or 2:

```
120 GRAPHICS 1: REM (OR 2)

240 POKE 756, NEWSET+2

270 PRINT #6;CHR$(4)

320 PRINT #6;CHR$(CHAR)
```

You can get rid of the hearts by redefining the heart character to a space (the data is all 0's). The hearts show up because the heart character is the first character of the set that these graphics modes use. If you need both upper and lowercase characters, all you have to do is redefine the character set so that the graphics characters become upper case letters. You can even use MOVEMEM (MM$ from above) to do this quickly for you. The following statement will move the uppercase letters into the graphics characters locations in memory:

```
X=USR(ADR(MM$), 57377,NEWSET*256+65,26)
```

Now a [CONTROL] [A] will give you an uppercase A.

ANOTHER TRICK

If you want to switch quickly between several character sets, there are two techniques you can use:

1. You can simply load several character fonts into RAM and switch the character base pointer to the appropriate font. This is inefficient because you must keep many character sets in memory.

2. Use MOVMEM (MM$). This little utility will move your character set from a string variable into RAM while the CHARACTER BASE POINTER is already pointing to your newly protected memory reserved for custom fonts. You need only one area for all of your data because the routine will place the correct 1,024 bytes of data into your reserved area so fast you can't tell it's happening.

MAIN PROGRAM ADDS

Now you should type in Listing 1, HOUSE02.LST, check-

continued on page 33

Red, White and Blue

More devilish than Rubik's Cube?

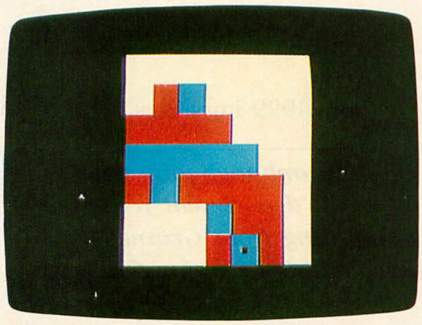
BY HEIDI BRUMBAUGH, ANTIC EDITORIAL ASSISTANT

Celebrate July Fourth by trying to beat your Atari at the challenging logic game of Red, White and Blue. It's a kind of solitaire Othello, with no less than 30 skill levels. So go ahead and put "Stars and Stripes Forever" on your stereo, turn up the volume as loud as you can stand it, light your sparklers, firecrackers and Piccolo Petes—making sure to observe the local fire safety codes, of course—and get ready to play Red, White and Blue, the first publication of a Game of the Month written by an employee of Antic Publishing. This BASIC program works on all 8-bit Atari computers of any memory size, with disk or cassette.

You win the game of Red, White and Blue by converting all the squares from red to blue. To change the color of a square, you just move onto it. The problem is—you can't move onto a square that is *already* blue.

To play Red White and Blue, type in Listing 1, RWB.BAS, check it with TYPO II and SAVE a copy before you RUN it.

At the start of the game, all the squares except the one you occupy are white. This means their true colors are hidden. The only way to discover



a square's true color is to try moving onto it.

Use your joystick to move up, down, right or left. The color of the new square you have chosen is displayed. If the square is red you will move onto it at once, changing it to blue. However, if the square is already blue the computer will beep, indicating that you cannot move into it.

The red and blue squares are arranged randomly at the beginning of a new game, so you get a different pattern every time you play.

The reason the game can be so hard to win is that once you make a move, you can't go back the way you came. This makes it easy for you to get surrounded by blue squares and blocked from any further moves.

FLIP THE BOARD

But there's a way to escape. You can "flip" the entire board by pressing your joystick button. At once, all the squares that were previously blue will be red—and vice versa. The only square that doesn't change color is the one you occupy. It always remains blue.

After you flip the board, you will be free to continue moving about the grid with your joystick, trying to forge a path that allows you to change all the red squares to blue without getting trapped again. But even with the help of repeated flipping, some boards will be impossible to solve.

Skill level is determined by the size of the grid. At the opening screen, move your joystick up or down to change the skill level, then press the

continued on next page

joystick button to start playing.

There's not much challenge to a low skill level—a 2×2 or 3×3 grid. It will either be very easy to win or immediately obvious that the board is impossible to solve. However, this is a good place to start if you want to get an idea of how the game works. The highest skill level is limited only by the number of squares that can fit on your video screen. As written, the program's maximum is eight squares. But you can shrink the square size to squeeze more into the grid. Do this by decreasing the value of LSQR in line 11000 to 3 (or even 1) or change MODE to 7+16 to get a higher resolution.

For a super-challenging grid size of 32×32 use MODE 7+16 and a LSQR of 1. However, game speed will slow considerably at this point.

If you get stuck, quit a game and randomize the squares for a new game by pressing the [ESC] key. Or do the same thing by pressing the joystick forward and giving a light tap to the trigger button. Then use the joystick to confirm that you want to quit and tap the trigger once again. (**Antic** is fulfilling the request of a March 1987 I/O letter. For the convenience of physically handicapped players, all commands in this game can be given with the joystick.)

ABOUT THE PROGRAM

I originally wrote this game for the IBM PC as a way of better understanding MicroSoft BASIC's logical operators. Commands such as AND, OR and XOR (eXclusive OR) made it very simple to flip a square's value back and forth without using any math. Ironically, when I translated the program into Atari BASIC I had to change the data structure completely to account for that language's sometimes limited syntax.

The values of the squares are held in a two-dimensional array (STAT(X,Y)). If a square is blue (already captured) it has a value of 1. If it is red, its value is 0. To "hide" the squares at the beginning of the game, simply add 10 to that value.

This way, it is easy to see that the integer value of a hidden square (10 or 11) will be 1 if it divided by 10 (see line 5030). If it is not hidden, you "flip" the square by taking the absolute value of STAT(X,Y) subtracted by 1, as in line 5050. (ABS(1−1)=0; ABS(0−1)=1.)

In the original PC version of the program, the four possible square values— 0, 1, 10 and 11—were given in binary (0, 1, 2 and 3), to make it easier for the computer to perform its logical operations. The Atari version uses decimal instead, to make it easier on the programmer.

PROGRAM TAKE-APART

Lines 100-499 use subroutines for initialization and opening menus.

500-999 puts the often-used subroutine to draw a square at the beginning to save processing time

1000-1999 is the main routine. It reads joystick value, makes sure the user doesn't want to quit and checks for win after each turn.

2000-2999 makes sure the move is within the grid. The updated position is held in temporary variables during a checkup that the user isn't trying to move into a blue square.

3000-3999 paints the new square color, moves the place marker and updates the STAT(X,Y) values if the move

You can't move into a square that's already blue—and you don't know if it's red or blue until you remove the white covering.

is valid. If not, the computer beeps and saves the old values.

5000-5999 flips the board. We save time by redrawing the board as we flip the squares.

6000-6999 draws the gameboard.

7000-7999 is the opening menu.

10000-10999 randomizes for new game.

11000-11999 initializes.

Heidi Brumbaugh joined the **Antic** *editorial department a year after graduating from Grinnell College, Iowa where she majored in Russian language. After taking a few programming courses, she became a fixture in the computer center until they felt so sorry for her they gave her a job as a user consultant. We promised Heidi we'd publish this first submission (originally titled Pathfinder) as the July Game of the Month if she let us change the title—and the game colors—to a suitably patriotic Red, White and Blue.*

FOR MORE ARTICLES LIKE THIS, CIRCLE 158 ON READER SERVICE CARD.

Listing on page 84

ing it with TYPO II. ENTER it into HOUSE01.BAS from last month to make use of the things we have learned so far. Save this version as HOUSE02.BAS. If you have trouble typing the special characters in lines 110 and 150, Listing 2 will create these lines for you, and write them to a disk file called LINES02.LST.

HOUSE animates by printing modified #, $ and % characters, all in the same spot on the screen.

Line 110 contains the memory move routine from above.

Lines 140 and 150 place the data for three new characters into a string called (naturally) "CHARSET$".

Line 160 saves the RAMTOP value

Line 170 sets the character base, CB, at 4 pages or 1K down in memory.

Line 180 safeguards RAMTOP by lowering it another 1K below the character set.

Line 190 uses the MM$ routine to move the 1,024 bytes of the character set from its regular place at 224 pages to the new location 1K down in our safe area.

Line 200 moves only the 24 new bytes in the character string into the old set we just moved into RAM. It is placed into the set starting at the third character, because NCA, which is the starting point for this move, is 24 bytes or 3×8 past CA, which is the start of the whole set. Translated into English, the first eight numbers starting at CA are the first character, the next eight the second, and so on.

Line 2000 tells the computer the new location of the character set data and will switch character sets instantly. Now we need Proto.

Lines 2010 to 2080 simply print our modified characters on the screen, using #$% over and over again with their new data.

Finally comes a loop to slow down our frisky friend Proto.

MORE PROTO

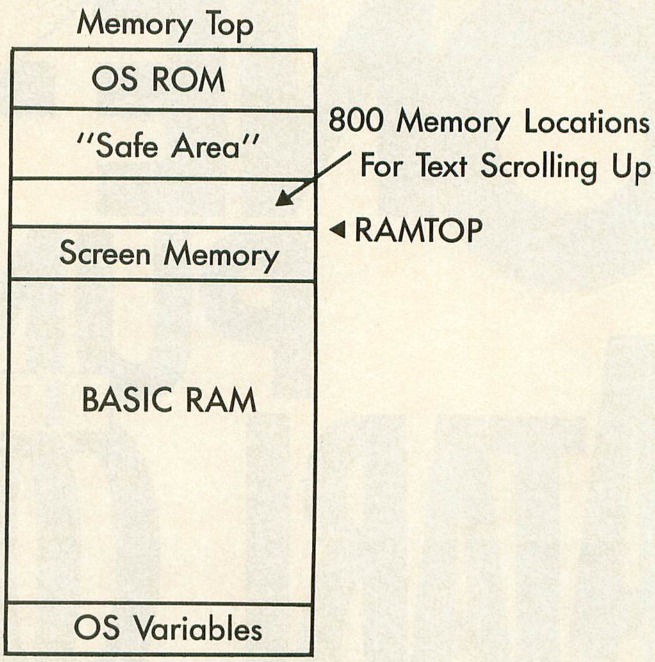
Our pal is pretty small and doesn't move around much. After all, Proto is only one character tall. But we can make him larger by using several characters to draw him on the screen.

Type in Listing 3, HOUSE03.LST, checking it with TYPO II. If you have trouble typing the special characters in lines 2110-2120, Listing 4 will create these lines for you, and write them to a disk file called LINES03.LST.

HOUSE03 adds some new lines to the program and enlarges Proto. Be sure and type in the REM statements, because they blank out old line numbers that are no longer used. You ENTER the code while HOUSE02.BAS is LOADed into your Atari. SAVE this version as HOUSE03.BAS.

Line 100, the delay loop, has been moved to the front of the code. This is because timing loops take longer to run the further back in the code they are. BASIC always starts each loop by going to the top of the code and searching for the lines it needs. Placing it here will keep the timing the same as the program grows.

FIGURE 1



Lines 150, 160, and 180 delete the old lines in the last version of the program. If you're typing this in, you can delete the old lines simply by typing the line number and pressing [RETURN].

Line 200 places the new shapes, starting at character 96 in the set—abcdefghijklmnopqr. The other trick in this line involves SEC=0 to 1. This and line 210 place two strings into the Proto character. The second set of data starts 76 bytes into the data. The two sets allow us to keep our strings short. You can do this several ways, but you can't have 300-character strings all on one line. I could have had line 2120 say CHARSET$ (77,152) = "whatever goes here" to define the string.

2000 to 2060 work as usual, we just print three vrsions of the little guy using more characters this time. Here are the three versions of Proto:

VERSION 1	VERSION 2	VERSION 3
ab	gh	mn
cd	ij	op
ef	kl	qr

Of course, we have given these letters new shapes of a more artistic nature.

The most interesting change we've made is to store the shape of the characters in a string called CHARSET$. It it efficient because each number (like 240) previously stored in a data statement is now stored in one number. Those are the characters you see in the string.

A simple way to check the progress of your work with custom characters is to stop the computer after you think you have changed the characters. Now press the keys you

continued on page 41

Chicken XL

A Stan Ockers classic returns

PROGRAM BY STAN OCKERS
ARTICLE BY ANTIC ED

*Chicken is a smooth "Frogger"-type game that originally appeared in the first issue of **Antic**. This BASIC program works on all 8-bit Atari computers of any memory size, with disk or cassette.*

We're proud that so many readers have been with us for the entire five years of **Antic** Magazine's publication. However, most people discovered Atari computers and **Antic** considerably more recently. Now you won't miss out on the classic programs from **Antic's** early years. Our newest department—the **Antic** Hall of Fame—will reprint outstanding programs from the issues we published five years ago.

Actually, the Hall of Fame will do more than simply reprint classic **Antic** programs. Without changing anything about the way these programs look or run, we will re-edit the listings to ensure that they work on today's XL and XE models—and also to ensure that typing them is made as easy as possible.

It's a pleasure to begin the Hall of Fame with Stan Ockers' *Chicken* from April 1982, the very first issue of **Antic**. Though now less active than he used to be, Ockers is probably the best known and most prolific programmer of Atari public domain games. He still lives in Lockport, Illinois, but his games usually premiere in the newsletter of the Eugene (Oregon) ACE. He has resisted offers to turn pro and gives all his games to public domain, refusing to accept payment for them.

Ockers' smooth, inventive games are state-of-the-art Atari BASIC and highlighted this magazine's early issues. His last appearance in **Antic** was *Crickets*, September 1985. Games by Stan Ockers can be found on no less than four public domain disks from The Catalog. (PD001, PD003, PD004, PD005. $10 each.)



Other public domain programmers have tinkered with the original Chicken listing. So unfortunately many current versions do not work correctly on the XL/XE computers. However, the listing published in this issue is the "pure" version that Ockers recently sent us at our request, and it works just fine on the XL and XE.

CHICKEN REVISITED

Type in Listing 1, CHICKEN.BAS, check it with TYPO II and SAVE a copy before you RUN it.

This gem was a clever BASIC adaptation of the popular "Frogger" format. What follows is the original 1982 text for *Chicken—A Great Game*:

Why did the chicken cross the road?

To lay an egg.

Actually, our chicken is trying to score points by getting safely across this busy highway. Each time he makes it adds to his score, but the cars go faster and faster. If he gets hit, the SPCA sends an ambulance and the cops slow the traffic for a while.

Listing on page 86

Ghost Writer

Transmit your own subliminal messages

B Y   T O M   M O O R E



Ghost Writer lets you experiment with subliminal messages on your Atari—anything from "Feed Spot" to "Feel Good" to "Use TYPO II." Just don't use the power of subliminal text to influence your friends with sneaky messages such as "Buy Lunch." Ghost Writer's influence should only be used for positive-thinking, self-improvement messages. This BASIC program works on all 8-bit Atari computers of any memory size, with disk drive.

Warning: the Ghost Writer program makes USR calls to the spirit world. Not only that, techniques of subliminal suggestion are employed and *you* could be subconsciously influenced.

But if you're brave enough, douse those lights, lean back and commune with another world via your Atari. Ghost Writer works best from a distance and with the lights out. Try to get a *black* background on your monitor or TV.

Ghost Writer calls the spirits randomly—and it seems that insulting, obnoxious spirits are the most prevalent. . . "Here—we die," said the Ghost Writer. "Profound," I thought. Then came a couple of screens of gibberish. Then "Kiss—Moi" (A French ghost?) and suddenly I had this crazy urge to go jogging—so I did.

What's going on here? Actually, those random phrases that Ghost Writer flashes over the flickering screen patterns are just a coverup for your secret subliminal message.

For a while during the '50s, use of subliminal messages was a hot controversy. Subliminal messages are flashed on film or TV so fast that the eye doesn't consciously notice them—but the brain gets the message anyway. People were worried that unscrupulous advertisers or politicians would use the hypnotic power of subliminals to control the minds of

citizens.

As it turned out, subliminal messages weren't all that effective. A couple of low-budget horror movies used subliminals as a gimmick, but drew more giggles than shivers. However, there were also occasional tantalizing reports of successful experiments. For example a movie theater snackbar was supposed to have increased business substantially by flashing subliminal messages like "Eat Popcorn" and "Drink Cola" during the films.

Ghost Writer lets you experiment with subliminal messages of your own writing. Ghost Writer's influence is best applied to "self help" sayings such as "Be Positive" or "Make Sure." Don't misuse the power of subliminal text to bombard your friends with sneaky messages such as "Buy Lunch."

I've tested Ghost Writer on several unsuspecting friends and they found the spirits' ramblings surprising. More surprising, however, was my friends' unconscious desire to do something. Even when pointed out, the message still has impact—watch what you say.

GETTING STARTED

Type in Listing 1, GHOST.BAS, check it with TYPO II and SAVE a copy to disk. Next, type in Listing 2, GHOSTA.BAS, check it with TYPO II and SAVE a copy before you RUN it.

When RUN, Listing 2 creates a file called GHOST.FNT, the special character set used by Listing 1. (Antic Disk Subscribers will find GHOST.FNT on the monthly disk).

Keep GHOST.BAS and GHOST.FNT on the same disk. To use the program, simply type RUN "D:GHOST.BAS".

ABOUT THE PROGRAM

TOM$ and MOT$ contain your message, located in line 1220. The strings are dimensioned at 20, so you could have a message that's 40 characters long—but it would look a bit shoddy. Short messages (four letters or less) are picked up most effectively by your subconscious mind. To center the message you'll have to use words or sentences that contain an even number of letters and spaces.

Ghost Writer uses a display list that allows smooth vertical scrolling to create the effects you see. There's also a great variety of colors on the screen. If your eye's not fast enough to catch them all, press [CONTROL] [1] when the words "Ghost Writer" start flashing at the top of your screen. This is when the most colors appear onscreen.

GHOST.FNT is the character set the spirits write with. Feel free to change the character set as you wish (but keep a back-up copy of my original in case you don't like the changes). Try edit-

continued on next page

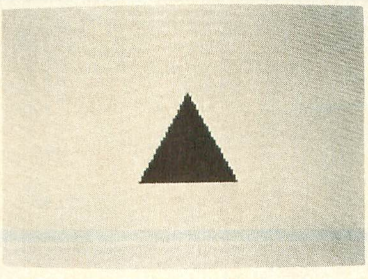
Afterimage

Tricky Atari optical illusion

BY NICK KOZIUPA

Afterimage is a short listing that tests a simple but interesting optical illusion. Most users will apparently still "see" an image after it has been removed. This BASIC program works on all 8-bit Atari computers of any memory size, with disk or cassette.

One day my biology teacher showed the class how an image—such as the bright glare of a flashbulb—can be temporarily "burned" into the retina of the eye. So that after the image has been removed, you can apparently still "see" it. I decided to try demonstrating this effect with the graphics of my 8-bit Atari computer.



Type in Listing 1, AFTIMAGE.BAS, check it with TYPO II and SAVE a copy before you RUN it. When you RUN the program, you'll see a brief title screen and be asked if you need instructions. Press either [Y] or [N].

Now you'll be prompted to choose a color and a shape. The screen then turns white and the shape appears at the center. Concentrate on it and try not to blink. In about 15 seconds the shape will leave the screen. If the test works, you'll still see it—but in the opposite color. So if you picked a red square, you should now see a *green* square in its place. After several seconds, the program returns to the color selection menu.

Nick Koziupa is a high school sophomore in Hamilton Township, New Jersey. He has been programming on his Atari for three years.

Listing on page 91

ing the [*] and the [!] and their [CONTROL] key equivalents for the most radical changes in the appearance of the writings. I used Envision ($15.95, The Catalog, APO185) for my character creating, but other character editors such as *Ultra Font* (**Antic**, August 1986) will work just as well.

For a different look, try this: Hold down the [SELECT] key when you

With Ghost Writer, be careful about what you suggest.

type RUN. When the Ghost Writer screen appears, press the [BREAK] key to stop the program. (Programmers Note: GHOST.BAS uses a fairly common DEBUG routine. Holding down the [SELECT] key activates this routine and lets you use the [BREAK] key. When the DEBUG routine is not used, the [BREAK] key is disabled.)

Once the program is stopped, type something such as ? FRE(0), or ? TOM$. Press [RETURN] and then type RUN. You can repeat this procedure until you get a spirited lock-up. (Make sure the program has been SAVEd to disk before you try this.) Once the spirits lock up your computer, even an exorcism can't help it. Time to reboot.

If you own a BASIC compiler, give it a spin. The speed of events is critical, so you may have to tinker with lines 2430 and 2440 to achieve the speed that works. Simple delay loops are tough, so you might use system timers to cue your subliminal (PEEK 20 and 19).

Tom Moore is a 31-year-old designer and builder of professional audio/video systems in central Florida. A former pro musician, he is now totally immersed in MIDI and is working on turning his Atari 800 into a MIDI velocity meter for use alongside his 1040ST.

FOR MORE ARTICLES LIKE THIS, CIRCLE **158** ON READER SERVICE CARD.

Listing on page 87

Antic Writer

Full-featured professional word processor

Now for only $5.95—down from $10.95—you can get single copies of the Antic Monthly Disk. And each month's double-sided disk will feature an Xtended Disk Bonus not available in the magazine. Usually this bonus program will be software that's too long or complex to work as a type-in listing. Xtended Disk Bonus software may be for either the 8-bit Atari or the ST in any given month—or sometimes even for both.

For our premiere Xtended Disk Bonus, **Antic** is proud to offer a professionally programmed full-fledged *machine language* word processor for any 8-bit Atari with minimum 48K memory—Antic Writer.

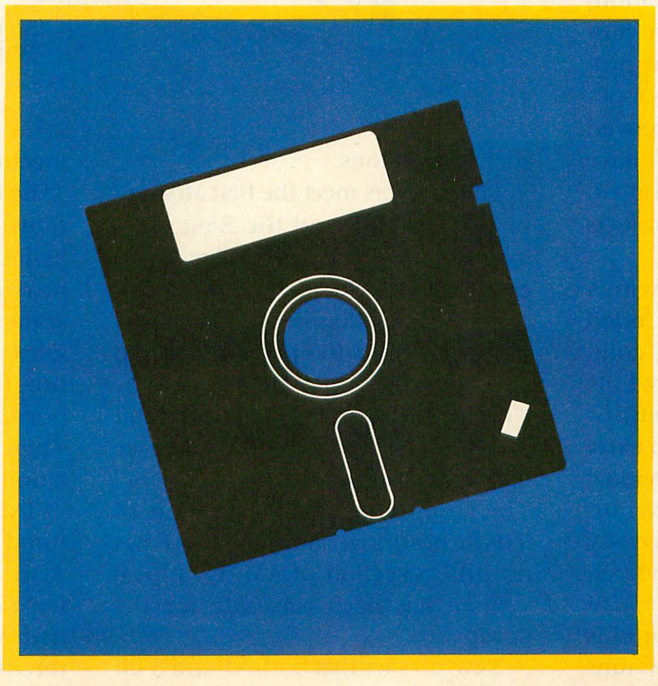
Developed by a small commercial publisher, Antic Writer never quite made it all the way to being released in a crowded and competitive software marketplace. In a number of ways, Antic Writer is reminiscent of leading Atari word processors such as PaperClip and Word Magic. It certainly delivers the essential capabilities you'd expect from a professional word processor: block move, search and replace, block copy, headers, print formatting and so on.

Because it is written entirely in assembly language, Antic Writer is *fast*. You'll find that it can keep up with even the fastest typist and not lose any characters.

Antic Writer is easy to operate and provides extensive online help screens. We have also placed the Antic Writer manual on side 2 of the July Disk, along with the Antic Writer program itself. The manual is in two Antic Writer text files—ANT1.TXT and ANT2.TXT. Select option C from the DOS menu to "Copy" these files to P: (your Printer) or E: (onscreen Editor).

You'll find it a lot more convenient to work with Antic Writer if you copy it off the monthly disk and put it on a separate disk. To make your own Antic Writer disk, start with a disk which has been formatted with DOS 2 or 2.5 and has a DOS.SYS file on it. Next, copy ANTICWTR.EXE to this disk and rename it AUTORUN.SYS. Be sure to make a backup copy of this disk before you use it.

To start using Antic Writer, place your Antic Writer disk into your disk drive, remove all cartridges from your Atari (XL/XE owners should depress the [OPTION] key) and turn on your Atari.



Next month's Xtended Disk Bonus—a professionally programmed, full-featured database!

Special Note to Programmers: If you have high-quality software for the Atari 8-bit or ST that is too big or too complicated for a type-in listing, send it to **Antic** for possible paid publication as an Xtended Disk Bonus. Runtime versions of software in any programming language will be considered. If your program was once turned down here solely because it was too big or too hard to type, you can resubmit it for Xtended Disk Bonus consideration.

FOR MORE ARTICLES LIKE THIS, CIRCLE **166** ON READER SERVICE CARD.

Toronto Atari Federation

Membership zooms tenfold since '84

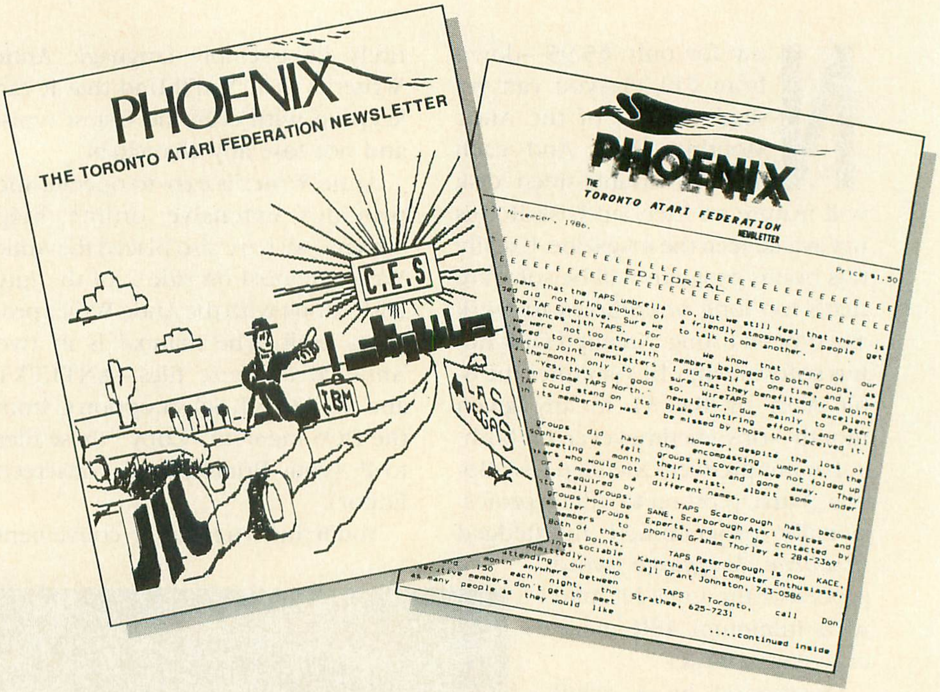
BY GREGG PEARLMAN, ANTIC ASSISTANT EDITOR

TAF, the Toronto Atari Federation, went from about 40 family memberships in 1984 to 300 by the end of 1986—and then added another 73 families in the first two months of 1987. Lots of Canadians got STs for holiday gifts.

"Our growth rate is normally around 25 members a month," says Ian Newton, who was TAF's president until February 1987, when Jim Clark took over. The greatest distance anyone travels to the meetings is about 40 or 50 miles.

"One of the big problems most clubs have is that normal screen size imposes limits on program demonstrations," says Newton, "so we purchased equipment to project the programs onto a very large screen—about eight feet by 10. This has improved presentation a lot, and we don't have to use three small monitors. You tap into the video system and it projects right onto a wall or a screen."

TAF began in March, 1982, with a group of interested Atari users aided by a local software marketing company. Memberships are for the whole family. If a parent joins, the spouse or the children can also join at no extra cost. The average age for individual members is late thirties or early forties. Most members are university graduates and they work in a wide variety of occupations. Less than 5% of TAF members are children, but kids often show up at special functions



such as auctions.

The ST users meet the first Monday of each month, and the 8-bit users meet on the third Monday. Each group has its own vice president. The executive meeting is on the second Monday. About 100 people show up at both the ST and 8-bit meetings. "That's a large percentage of 8-bit users," says Newton, "because we only have about 150 8-bit members." The group's only SIG is for users of VIP Professional, and while TAF has no BBS, a section of AMCO, a local system, has been set aside for the group.

Newton says that both ST and 8-bit meetings are always well-organized. "The first part consists of demonstrations of the latest library disk highlights. There are always at least one or two new disks per month. Then comes a 10-minute break for disk sales, followed by a feature presentation from an outside speaker which normally takes 30 to 45 minutes. Then one or two additional presentations usually take place."

TAF meetings usually have a featured outside speaker, often from Atari of Canada—General Manager Ian Kennedy or a marketing executive. Atari gives presentations at least three or four times a year. Batteries In-

cluded, being a local company, is always around and Ian Chadwick, author of *Mapping the Atari*, often attends meetings.

Several retailers are active at TAF meetings, supplying free giveaways at raffles, etc. "We have quite good support from our retailers," says Newton. "Some retailers have special deals where if you buy their equipment, you'll get a free membership to our club or a 10% discount. At the raffles, any software we have is freeware or public domain material—no unauthorized copying whatsoever."

TAF FUNCTIONS

TAF is semi-affiliated with several clubs in southern Ontario which they provide with club library disks. "We suggest that an officer of each club become a TAF member also," says Newton. "They can get a copy or two of all our disks and make duplicates for their own club members." TAF also had a booth at the April 1987 Western New York Atari Users Group Atari Fest in Buffalo.

"Mainly, however, we do a lot of swapping of our newsletters—with clubs all over the world," says Newton, "including some in the Netherlands, England, and Australia. On a business trip to Europe, I contacted some users groups for the purpose of ST disk exchanges."

PHOENIX

The TAF newsletter, Phoenix, is usually 28 pages, typeset on the ST with a dot matrix printer and copied at a local printshop. Between 50 and 100 are sold by retailers. In March 1987, Larry Sannuto become the editor. "We're doing a lot more with graphics in the newsletter now, using DEGAS Elite on the ST," says Newton.

SURVEY

Of TAF's 373 family members in January 1987, 219 owned STs, of which 65-70% are 1040s. The 130XE is by far the most popular 8-bit computer used. About 90% of XE owners use Atari 1050 disk drives. Few, if any, members use cassettes anymore.

Almost all TAF members are users, not programmers. In fact, only about 5% program. TAF member James Duffin is the author of *Font Maker* (**Antic**, March 1985) and he now has a version for the ST.

XE users who do program mostly use BASIC, and ST programmers use ST BASIC, C and Pascal. ST BASIC has a narrow margin over C.

There's no club BBS, so only 15% to 25% of members go online. The most widely used online services are local bulletin boards and then CompuServe.

In order of importance, TAF members use their Ataris for:

1. Word Processing
2. Games
3. Education
4. Programming
5. Business/Finance
6. Communication
7. Other

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ATARI ANIMATION
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have modified and see if they print out on the screen with the new shapes. In our example, press the keys in this order:

abc def ghi jkl mno pqr

This should display the different parts of the new shapes we have created. It is easier to look at the shapes this way than to wait for the program to use them. Also, you can study each shape when it is not moving around.

Creating the masterpiece I promised you will take *lots* of custom characters. Figuring out a few shapes for Proto was not bad, but 30 or 40 shapes sounds hard. However, next month we will deliver the tools to make it easy!

Robin Sherer is co-author of the Atari programming books Tricky Tutorials, Master Memory Map For Atari, BASIC Arcade Graphics *and* Atari Game Design.

RECOMMENDED BOOKS

Your Atari Computer by Lon Poole, Osborne/McGraw-Hill.

Mapping The Atari by Ian Chadwick, Compute! Publications, Inc.

FOR MORE ARTICLES LIKE THIS, CIRCLE **165** ON READER SERVICE CARD.

Listing on page 83

How Much Are You Worth?

SynCalc template figures it for you

BY GORDON TOOMEY

How much are you worth? Net worth measures your financial growth and can help you attain desired financial goals. This file gives a projection for the next year, as well as each six-month period for the next two years. I use SynCalc (Broderbund, $49.95) to update my net worth as of January 1 and July 1 each year. (*We could not get this template to work with Calc Magic or VisiCalc. If you come up with a fix, send it to **Antic** for possible publication.* —ANTIC ED)

A personal net worth file is a key document in planning your financial future. If you have SynCalc spreadsheet software and are familiar with its use, you can track your own personal net worth on an 8-bit Atari computer with at least 48K memory and disk drive.

To figure out your net worth, you need to know the value of your assets, liabilities and, in this case, liquid assets. Net worth is the dollar value of total assets minus total liabilities.

- Total assets = all money and property.
- Total liabilities = The sum of charge cards and other credit accounts.
- Liquid assets = cash in hand. In other words, available money—not including property.

ASSETS AND LIABILITIES

Start out by using your word processor to make a table of your assets and liabilities. *Figure 1* shows the January 1, 1987 table for a fictional couple we'll call Tom and Betty.

Here, "property" includes all personal property—even if it's mortgaged or owned on borrowed money. For example: houses, furniture, automobiles, rentals, and valuable collections such as coins or stamps.

Tom and Betty own a house, furniture, a car and a coin collection. Except for the car, the market value for all this property will remain constant for the next two years. (The market value of the furniture is taken from the fire insurance policy.) Instead of using classified ads or a dealer's blue book, Tom established a car depreciation figure of $1,000 per year from his past history. The car cost $10,000 two years ago, and Tom thinks it will last eight more years.

Include the cash value, if any, of all insurance policies. Investments include stocks, bonds and limited partnerships. Note their current value and estimate the percent of increase based on past growth and dividend. Tom notes $3,000 of JB Inc. stock with a projected growth of 8%.

Miscellaneous accounts are items not covered by other categories. Here, it's a one-year, $1,000 loan Tom made to his friend Bill at 6% interest.

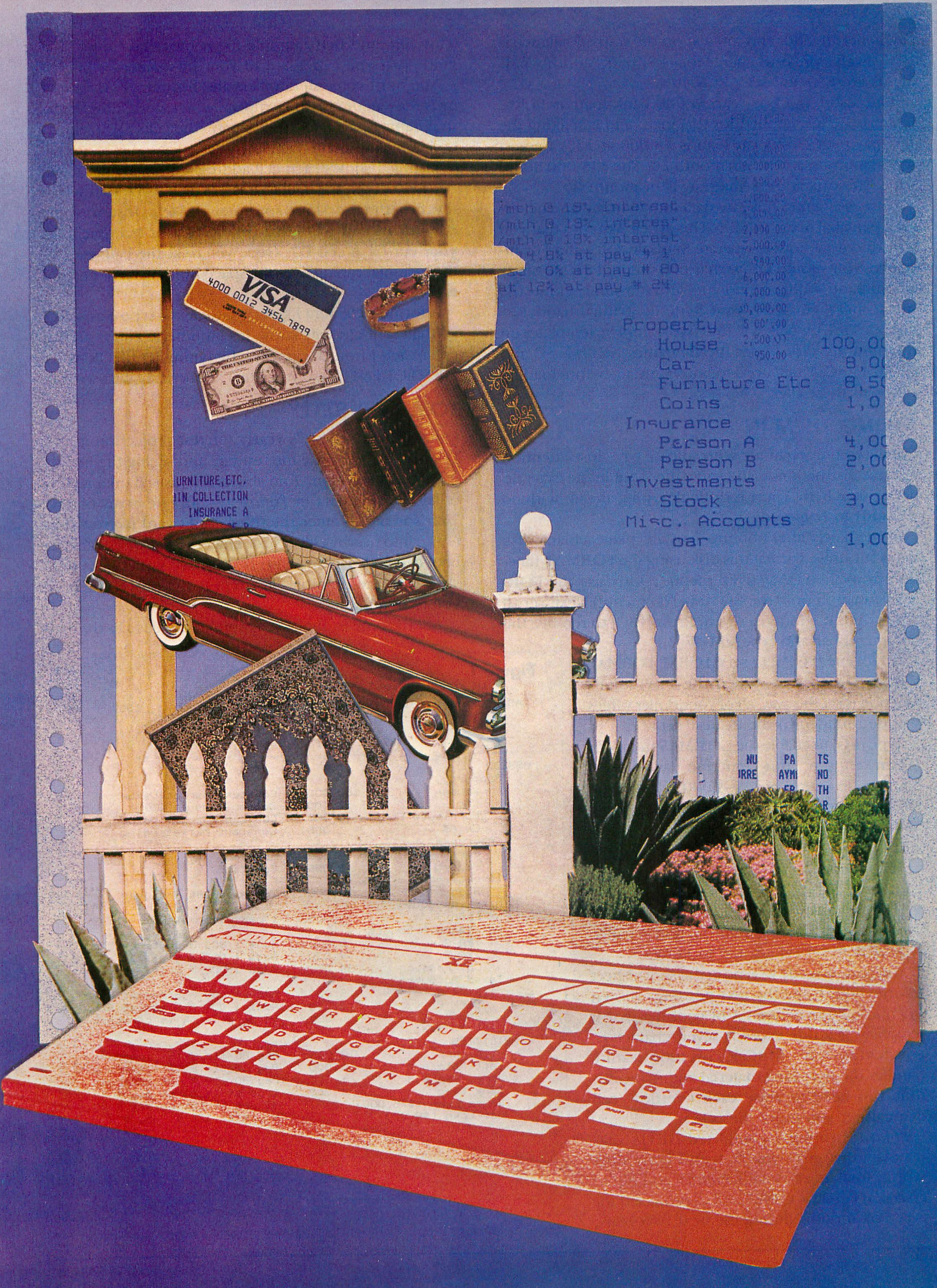
The remaining items include Not Taxed Accounts and Taxed Accounts—only money earned in the *taxed* account must be reported at the end of the tax year.

Tom has three Not Taxed Accounts: two IRAs (Individual Retirement Accounts), and an account consisting of money contributed to Tom's pension by his employer. Tax on this must be paid upon retirement unless Tom puts it into another IRA. Every six months, $1,000 is added to each account. Interest averages 8%.

The Taxed Accounts are two savings accounts earning an average of 8%, and a checking account earning 6%.

Once your assets are defined, list your liabilities—credit cards and all loans, such as home, car and rental property. Tom and Betty have a Visa card and two department store cards. Their current Visa debt is $2,000. Monthly

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Property
House
Car
Furniture Etc
Coins
Insurance
Person A
Person B
Investments
Stock
Misc. Accounts
URNITURE,ETC.
IN COLLECTION
INSURANCE A
VISA
XE

payments are $80, and interest on the unpaid balance is 19%. Each store card charge totals $1,000. Monthly payments are $30 and interest is 19%.

Tom also has a one-year, $1,000 bank loan at 14.8% interest. He just applied for this loan, and is making the first payment. Tom's car loan is $8,000 at 12% interest for 48 months, and he's in month 24. The $75,000 house loan, 30 years at 10% interest, is in month 80.

Now we'll enter this raw data into SynCalc and generate a personal net worth file. This article assumes that you already know how to operate SynCalc software. For instance, you should know that pressing [OPTION] starts a command sequence, how to move around within the spreadsheet, etc. Keep your SynCalc manual handy!

Antic Disk owners will find two complete templates on the monthly disk under the filenames NETJAN.SC and NETJULY.SC. You'll need to boot SynCalc before loading either of these files.

TYPING THEM IN

Even if you're a SynCalc whiz, please pay close attention to these instructions—and carry them out in the exact order printed here. There is difficult typing ahead, with no TYPO II to help you.

Immediately after booting SynCalc, place a blank disk into your drive. Format this disk using the **FORMAT** function from the **LOAD/SAVE** menu. (Don't use the **FORMAT** function from the **COMMAND** menu!) Next, set all your column widths to seven. Press [ESC] to remove the command bar and type: **/FGW 7**

Now, type **/FGP 2** to set GLOBAL FORMAT PRECISION to two. When the PRECISION function is set this way, all of your dollar values will be rounded to the nearest cent.

Type **/FG,** to enable the COMMAS function. When chosen, this function will insert commas in numbers like 1,000. Next, type **/RM** to enable the GLOBAL RECALCULATE MANUAL command. This function speeds data entry.

Type **/FL A1:A255** to justify your entries in column A against the left margin. Type **/FR F1:H255** to justify your entries in columns F through H against the right margin. Finally, type **/RR** to set calculation to ROWS.

You're now ready to type in the spreadsheet information. Copy the text headings shown in *Figure 2* into column A of your net worth template. If a title exceeds seven characters, type it in anyway—SynCalc's overflow feature handles the over-long material automatically. (But you need to erase each overflow cell manually if you move the title.)

Figure 2 shows a completed NETJAN.SC template that gives you Tom and Betty's net worth, total assets, total liabilities and liquid assets on January 1, 1987 and as projected for every six months during the next two years. This Tom and Betty sample file is intended simply as a guide that you can adapt to your own situation!

You must enter all numbers and formulas in the *exact cells* shown, or else the template won't work. Enter zeros in columns B to E to "hold open" the cells for formulas and values to come later.

Listing 1 shows each cell address, followed by the entry. *Don't* type the cell addresses (such as D7) shown in the first three or four spaces at the left. Instead, type ***/Gcellname*** to *go to* that cell. **/GD7**, for example, puts your cursor at cell D7. Once you're at the cell, type in the formula, typing over the space-holding zeros entered earlier.

A formula element like E17 is not text—type it as **+E17** so that SynCalc will know it's a numeric entry. As you enter each formula, protect it by typing **/FO** (FORMULA PROTECT ENTRY) so you won't accidentally write over it.

TOM AND BETTY

Enter Tom and Betty's yearly interest projection in cell D4. Try changing the interest rate and seeing the impact of a new projection. Tom shows 8%, based on a review of the interest data in *Figure 1*— six line items of 8%. Tom could also enter the three credit card interest rates (19%) into nearby cells. Next, enter the *Figure 2* loan data between cells D6 and F14. If you have more loans than shown in the example, just repeat the procedure until you're done.

After typing in the text as shown in cells D6 through

Figure 1

ASSETS AND LIABILITY DATA CURRENT AS OF JANUARY 1, 1987

ITEMS	CURRENT VALUE	REMARKS
ASSETS		
Property		
House	100,000	Constant Market Value
Car	8,000	Depreciates 1,000/yr
Furniture Etc	8,500	Constant Market Value
Coins	1,000	Constant Market Value
Insurance		
Person A	4,000	Constant
Person B	2,000	Constant
Investments		
Stock	3,000	Increases 8% per year
Misc. Accounts		
Loan	1,000	1 year loan at 6%
Not Taxed Accounts		
IRA A	6,000	Adds 1,000 @ 6 mts at 8%
IRA B	4,000	Adds 1,000 @ 6 mts at 8%
Co. Pension	30,000	Adds 1,000 @ 6 mts at 8%
Taxed Accounts		
Bank A	5,000	Adds 1,200 @ 6 mts at 8%
Bank B	2,500	Adds 1,000 @ 6 mts at 8%
Checking	950	Value plus 6% is constant
LIABILITIES		
Visa card	2,000	Pay 80/mth @ 19% interest
Dept. Store A	1,000	Pay 30/mth @ 19% interest
Dept. Store B	1,000	Pay 30/mth @ 19% interest
Bank Loan	1,000	1 yr at 14.8% at pay # 1
House Loan ($75,000)		30 yrs at 10% at pay # 80
Car Loan ($8,000)		4 yrs at 12% at pay # 24

D14, Tom enters "house" in the adjoining cells under column E. The loan is the initial amount borrowed ($75,000). The interest is entered as a decimal (0.10). Enter the number of monthly payments (360) and type the current payment number (80) in the line below.

The monthly payment amount (PAY/MONTH) goes in the cell below. Tom used this formula for the monthly payment of the house loan in cell B9:

B5/((1-(1+B6/12)^-B7)/(B6/12))

(The ^-B7 is not a misprint. It means you're raising the value of B7 to a negative *power. This is the same as ^(1/B7).*—ANTIC ED)

For the car loan, use B12, B13 and B14 instead of B5, B6 and B7. The last item, cells B10 and B17, is the interest rate factor. Here's the formula for B10:

((1+B6/2)^(1/6)-1)

For B17, substitute B13 for B6 in the formula.

Rate factors for the other loans are calculated the same way. Just make sure that the cell letter is the same as the column letter for that particular loan.

Now enter the current value data for assets and liabilities. Move to the equivalent of row 24 shown in the example. Enter the *text* data in column A from the data you generated that is *similar* to *Figure 1*. Do the same for column B. Remember, when compiling the asset and liability data, we calculated the current value for the house and car loans while preparing the net worth file in Table B cells B49 and B50.

Tom used this formula for his house and car loans. (The house loan is in column E and the car loan in column F.):

B9*(1-(1+B6/12)^(-B7+B8))/(B6/12)

The house and car loan equities are easy to calculate. The loan equity equals the amount of the loan minus the value of the above formula.

Figure 2

NET WORTH AS OF JAN 1, 1987

	A	B	C	D	E	F	G	H	I
1									
2	LOANS		INTEREST/YR						
3	----------------		-----------						
4	HOUSE LOAN		0.08						
5	LOAN	75000.00							
6	RATE (DECIMAL)	0.10							
7	NUMBER PAYMENTS	360.00							
8	CURRENT PAYMENT NO	80.00							
9	PAY PER MONTH	658.18							
10	RATE FACTOR	0.01							
11	CAR LOAN								
12	LOAN	8000.00							
13	RATE (DECIMAL)	0.12							
14	NUMBER PAYMENTS	48.00							
15	CURRENT PAYMENT NO	24.00							
16	PAY PER MONTH	210.67							
17	RATE FACTOR	0.01							
18									
19									
20									
21									
22	ASSETS	PER 1/1/87	PER 7/1/87	PER 1/1/88	PER 7/1/88	PER 1/1/89			
23	----------------	----------	----------	----------	----------	----------			
24	HOUSE	100,000.00	100,000.00	100,000.00	100,000.00	100,000.00			
25	CAR	8,000.00	7,500.00	7,000.00	6,500.00	6,000.00			
26	FURNITURE,ETC.	8,500.00	8,500.00	8,500.00	8,500.00	8,500.00			
27	COIN COLLECTION	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00			
28	INSURANCE A	4,000.00	4,000.00	4,000.00	4,000.00	4,000.00			
29	INSURANCE B	2,000.00	2,000.00	2,000.00	2,000.00	2,000.00	NET WORTH	JAN 1,1987	95,314.60
30	STOCK	3,000.00	3,120.00	3,244.80	3,374.59	3,509.58	----------------	IN 6 MTHS	104,182.44
31	LOAN	940.00	470.00	0.00	0.00	0.00		IN 1 YEAR	113,453.13
32	IRA A	6,000.00	7,280.00	8,611.20	9,995.65	11,435.47		IN 1.5 YR	123,220.83
33	IRA B	4,000.00	5,200.00	6,448.00	7,745.92	9,095.76		IN 2 YRS	133,464.40
34	CO. PENSION	30,000.00	32,240.00	34,569.60	36,992.38	39,512.08	TOTAL ASSETS	JAN 1,1987	175,890.00
35	BANK A	5,000.00	6,448.00	7,953.92	9,520.08	11,148.88	----------------	IN 6 MTHS	182,376.50
36	BANK B	2,500.00	3,640.00	4,825.60	6,058.62	7,340.97		IN 1 YEAR	189,131.62
37	CHECKING ACCOUNT	950.00	978.50	978.50	978.50	978.50		IN 1.5 YR	196,665.74
38								IN 2 YRS	204,521.23
39	SUM ASSETS	175,890.00	182,376.50	189,131.62	196,665.74	204,521.23	TOTAL LIABILITIES	JAN 1,1987	80,575.40
40	SUM LIQUID ASSETS	18,450.00	23,546.50	28,817.22	34,298.77	39,999.58	----------------	IN 6 MTHS	78,194.06
41								IN 1 YEAR	75,678.49
42								IN 1.5 YR	73,444.92
43	LIABILITIES	PER 1/1/87	PER 7/1/87	PER 1/1/88	PER 7/1/88	PER 1/1/89		IN 2 YRS	71,056.84
44	----------------	----------	----------	----------	----------	----------	LIQUID ASSETS	JAN 1,1987	18,450.00
45	VISA CARD	2,000.00	1,664.40	1,296.92	894.53	453.91	----------------	IN 6 MTHS	23,546.50
46	DEPT STORE A	1,000.00	897.90	786.10	663.68	529.63		IN 1 YEAR	28,817.22
47	DEPT STORE B	1,000.00	897.90	786.10	663.68	529.63		IN 1.5 YR	34,298.77
48	BANK LOAN	852.00	426.00	0.00	0.00	0.00		IN 2 YRS	39,999.58
49	HOUSE LOAN	71,248.04	70,853.23	70,438.26	70,002.10	69,543.67			
50	CAR LOAN	4,475.36	3,454.63	2,371.11	1,220.94	0.00			
51									
52	SUM LIABILITIES	80,575.40	78,194.06	75,678.49	73,444.92	71,056.84			

PROJECTED DATA

Move to the equivalent of cell C24 in your file before inserting the projected data shown in columns C through F. *Figure 1* indicates a constant market value for the house, furniture, coins and insurance for both Betty and Tom, so he copied the cell B24 current house value into cells C24, D24, E24, and F24 by typing B24 into each of these cells. If cell B24 is changed, all corresponding cells to the right of B24 would change also. Tom also did this for furniture, coins and insurance.

Due to car depreciation, the cells to the right of B25 were treated differently. In *Figure 2*, Tom entered the value B25-500 into cell C25, C25-500 into cell D25, D25-500 into cell E25, and E25-500 into cell F25. Therefore, each cell reflects a depreciation of $500 compared to the cell to the left. A change in cell B25 instantly revises all neighboring cells.

To accommodate the constant 8% annual interest for JB Inc. stock, Tom entered the following formulas into cells C30, D30, E30 and F30:

B30*(1+C4/2)
C30*(1+C4/2)
D30*(1+C4/2)
E30*(1+C4/2)

Bill's loan was handled differently: the interest was deducted from the initial loan at the start ($1,000-(.06*1000)), and the balance ($940) was divided into 12 payments of $78.33 each. Therefore, Tom entered 940 in cell B31, B31-(940*6/12) in cell C31, and C31-(940*6/12) in cell D31. The zero in D31 means the loan has been paid, so he entered zero into cells E31 and F31.

The values in rows 35 through 39 all use the same formula —except the identification of the row number of each cell is different. For cells C32, D32, E32 and F32 the formulas are:

(B32+1000)*(1+C4/2)
(C32+1000)*(1+C4/2)
(D32+1000)*(1+C4/2)
(E32+1000)*(1+C4/2)

The cells in row 35 are handled as above, except 1200 is used instead of 1000 because of the difference in the amounts deposited every six months. The checking ac-

continued on next page

count entry is B37 * (1 + 0.06/2) for cells C37, D37, E37 and F37.

The assets data is completed after entering the the *assets* (the sum of the columns from row 24 through row 37: @SUM(B24:B37)) and liquid assets (the sum of columns from rows 32, 33, 35, 36 and 37).

The formulas used to calculate the projected six months for the Visa and two department store accounts is lengthy. Since the net worth file indicates trends and doesn't have to be accurate to the nearest dime, Tom used this formula:

(B-(P * 6)) * (1 + R/2)

B is the balance shown in the cell to the left, R is the interest rate and P is the monthly payment. For example, cell C49 says:

(B46-(30 * 6)) * (1 + .19/2)

Tom's formula for the cells showing the bank loan projection is the *balance shown in the cell to the left minus the amount paid each month*. It's calculated like this:

1000-(.148 * 1000) = $852.

Put 852 into cell B48. For cell C48 this is B48-(71 * 6), and for cell D48 this is C48-(71 * 6).

Figure 3

NET WORTH AS OF JULY 1, 1987

	A	B	C	D	E	F	G	H	I
1									
2	LOANS		INTEREST/YR						
3	----------------		-----------						
4	HOUSE LOAN		0.08						
5	LOAN	75000.00							
6	RATE (DECIMAL)	0.10							
7	NUMBER PAYMENTS	360.00							
8	CURRENT PAYMENT NO	86.00							
9	PAY PER MONTH	658.18							
10	RATE FACTOR	0.01							
11	CAR LOAN								
12	LOAN	8000.00							
13	RATE (DECIMAL)	0.12							
14	NUMBER PAYMENTS	48.00							
15	CURRENT PAYMENT NO	30.00							
16	PAY PER MONTH	210.67							
17	RATE FACTOR	0.01							
18									
19									
20									
21									
22	ASSETS	PER 7/1/87	PER 1/1/88	PER 7/1/88	PER 1/1/89	PER 7/1/89			
23	----------------	----------	----------	----------	----------	----------			
24	HOUSE	100,000.00	100,000.00	100,000.00	100,000.00	100,000.00			
25	CAR	7,500.00	7,000.00	6,500.00	6,000.00	5,500.00			
26	FURNITURE,ETC.	8,500.00	8,500.00	8,500.00	8,500.00	8,500.00			
27	COIN COLLECTION	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00			
28	INSURANCE A	4,000.00	4,000.00	4,000.00	4,000.00	4,000.00			
29	INSURANCE B	2,000.00	2,000.00	2,000.00	2,000.00	2,000.00	NET WORTH	JUL 1,1987	104,332.84
30	STOCK	3,285.00	3,416.40	3,553.06	3,695.18	3,842.99	----------------	IN 6 MTHS	113,639.11
31	LOAN	470.00	0.00	0.00	0.00	0.00		IN 1 YEAR	123,413.76
32	IRA A	7,280.00	8,611.20	9,995.65	11,435.47	12,932.89		IN 1.5 YR	133,664.57
33	IRA B	5,200.00	6,448.00	7,745.92	9,095.76	10,499.59		IN 2 YRS	143,091.12
34	CO. PENSION	32,240.00	34,569.60	36,992.38	39,512.08	42,132.56	TOTAL ASSETS	JUL 1,1987	182,526.00
35	BANK A	6,448.00	7,953.92	9,520.08	11,148.88	12,842.83	----------------	IN 6 MTHS	189,316.61
36	BANK B	3,640.00	4,825.60	6,058.62	7,340.97	8,674.61		IN 1 YEAR	196,857.60
37	CHECKING ACCOUNT	963.00	991.89	991.89	991.89	991.89		IN 1.5 YR	204,720.23
38								IN 2 YRS	212,917.36
39	SUM ASSETS	182,526.00	189,316.61	196,857.60	204,720.23	212,917.36	TOTAL LIABILITIES	JUL 1,1987	78,193.16
40	SUM LIQUID ASSETS	23,531.00	28,830.61	34,312.16	40,012.97	45,941.81	----------------	IN 6 MTHS	75,677.50
41								IN 1 YEAR	73,443.84
42								IN 1.5 YR	71,055.66
43	LIABILITIES	PER 7/1/87	PER 1/1/88	PER 7/1/88	PER 1/1/89	PER 7/1/89		IN 2 YRS	69,826.24
44	----------------	----------	----------	----------	----------	----------	LIQUID ASSETS	JUL 1,1987	23,531.00
45	VISA CARD	1,664.40	1,296.92	894.53	453.91	0.00	----------------	IN 6 MTHS	28,830.61
46	DEPT STORE A	897.90	786.10	663.68	529.63	382.84		IN 1 YEAR	34,312.16
47	DEPT STORE B	897.00	785.12	662.60	528.45	381.55		IN 1.5 YR	40,012.97
48	BANK LOAN	426.00	0.00	0.00	0.00	0.00		IN 2 YRS	45,941.81
49	HOUSE LOAN	70,853.23	70,438.26	70,002.10	69,543.67	69,061.84			
50	CAR LOAN	3,454.63	2,371.11	1,220.94	0.00	0.00			
51									
52	SUM LIABILITIES	78,193.16	75,677.50	73,443.84	71,055.66	69,826.24			

Since Tom didn't have the current balance for the house and car loans (see *Figure 1*), he calculates the current balance and projected value for them. Here's the formula for cell B49:

B9 * (1-(1 + B6/12)^ (-B7 + B8))/(B6/12)

B8 shows the current payment number of the house loan. For cell C49 this value is B8 + 6, since it's for a time period six months later. For cell C49 the above formula is:

B9 * (1-(1 + B6/12)^ (-B7 + B8 + 6))/(B6/12)

For the automobile loan, use row 50 and replace B5 through B10 with B12 through B17.

Finding the sum of the liabilities is like finding the sum of the assets. Here, it's the sum of all of the columns from rows 45 through 50.

You'll finish the net worth file after entering the formulas into cells I29 through I48. Enter total assets into *cells* I34 through I38 (@SUM B39:F39). Also, enter the total liabilities and liquid assets from the cells in rows 40 and 52. Finally, enter the formulas into cells I29 through I32. For example, into cell I29 enter the formula for the current net worth: B39-B52. This logic applies to the remaining net worth cells; total assets minus total liabilities for the same time period.

UPDATING

Every attempt was made to make sure each cell uses the data in the cell to its *left*. This simplifies the updating of the net worth file. For example, when a value in column B is revised, the remaining cells in that row change automatically.

For example, *Figure 3* shows NETJULY.SC, the updated file for July 1, 1987. First, Tom changes the current date shown in cells I29, I34, I39 and I44 to JUL 1, 1987. Next, he adds six months to the current loan payment number for the house and car loans (shown in cells B8 and B15) to 86 and 30 respectively.

Then Tom revises the dates shown in rows 22 and 43. Column B reads "PER 7/1/87". Six months will be added to the remaining columns so that "PER 7/1/87" will appear in column F.

The *projected* data for 7/1/87 shown in column C is revised and compared with the *actual* value for this date. For example, the current value of the house remains the same, as do the values of the furniture, coin collection and both insurance policies.

The new value for the car, $7,500, goes in B25. All remaining cells in this row reflect this new data input. The JB Inc. stock does a little better than Tom predicted, let's reset its value at $3,285. However, since Tom believes that the projected 8% interest is still valid, he puts 3285 into B30.

Bill's loan repayment proceeds on schedule, so Tom types 470 into cell B31. The IRA accounts, company pension, and bank accounts are at the projected values, so Tom enters the values shown in cells C32 to C36 into the

continued on page 49

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CIRCLE **162** ON READER SERVICE CARD

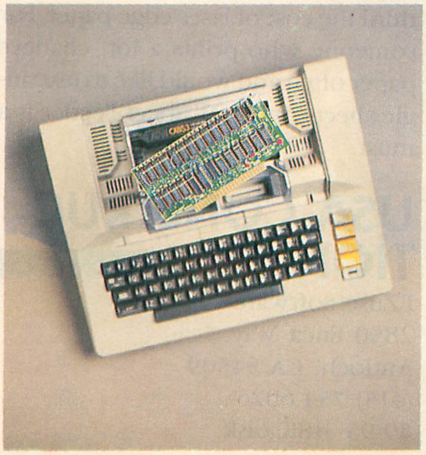
Reviewed by Charles Cherry

It is strangely satisfying to use an old Atari 800 with more memory than a 1040 ST. In truth, **RAMcharger** extra memory has limited utility, but it warms the heart to know that it is there.

Because the 8-bit Ataris can't use all this memory directly, 16K blocks of memory are switched around to fool the computer. Most programs are not designed to play this shell game and can't use the extra memory. For this reason, most people configure the memory upgrades as an imaginary disk drive—a RAMdisk. The RAMdisk works just like real disk drive—only bigger and much faster. Oh yes, the RAMdisk also forgets everthing as soon as the electricity stops, so copy your files to floppies before you switch off.

Bulletin board system operators will enjoy using a one-megabyte RAMdisk with over 8,000 sectors. So will programmers who work with compilers and macro assemblers—a huge RAMdisk speeds development very nicely. People who own a lot of unprotected programs will load their mega-RAMdisk and never turn off the computer—using RAMcharger as a very fast hard disk. Imagine, load any program instantly.

A few commercial programs will accept the extra memory as a larger workspace. Among them are SynFile+ and SynCalc, which will use about 288K. PaperClip 2.0 will use



320K on the XL and XE only. Magna includes a patch to let AtariWriter Plus use 48K. If you have a third-party DOS, it will probably use some or all of the extra memory as a RAMdisk. MYDOS is included in the package and can utilize all the installed memory. Atari XL and XE computers will let you use BASIC XE with a RAMdisk.

The Atari 800 expansion is Axlon compatible. The XL and XE expansions are 130XE compatible. The ST expansion is, of course, compatible with the 1040ST. The XL, XE, and ST modifications require that you send your computer to the Magna factory. I tested the 1Mb unit for the 800. That gave my computer 1032K total memory, 32K more than a 1040ST.

This 1Mb upgrade for the 800 consists of one board which plugs into the middle 16K RAM slot under the top lid of this Atari model. The RAMcharger can be surrounded by standard 16K boards or a modified 32K board and the BIT-3 80-column card. The 1Mb board is packed with piggybacked chips and it's a tight squeeze. Don't let the exposed wire on top of the chips touch the board in slot three. A simple 3×5 card will keep the boards safely separated.

The board I reviewed is very well designed and meticulously assembled, using the highest quality parts (tantalum capacitors, 5% resistors, gold-plated connector and switch). Power is drawn from the 800's almost unused 12VDC bus. An on-board regulator reduces it to 5VDC for the chips. A switch will turn off the expanded memory for any program which requires an unmodified machine.

It is unfortunate that thousands of copy-protected and autoboot programs will not run from a RAMdisk. This limits the practical value of these memory expansions. I would love to load all my favorite programs into a vast RAMdisk and never boot my system again. But life doesn't work that way. If you have any use for an 8-bit Atari computer with a vast amount of memory, Magna's products are an excellent choice. Their production quality is first rate.

BDT SHEET FEEDER

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$189

CIRCLE **151** ON READER SERVICE CARD

Reviewed by Kevin Steele

Shortly after upgrading my old Epson FX-80 to letter quality I took a look at the tractor paper I was using. Even with laser-edge paper, I still had to rip the tractor edges off after a printing session. And I practically had to tear apart the printer just to use my own letterhead. There had to be a better way, I figured, than just hand-feeding single sheets of paper.

Then I discovered a relatively inex-

continued on next page

pensive ($189) sheet feeder for my printer. BDT's ad listed sheet feeders for the Epson FX-80+, FX-100+, FX-85 and upgraded FX-80/100 printers. "The perfect solution," I thought, as I eagerly placed an order.

When the **BDT Sheet Feeder** arrived, I was already prepared for installation with a couple of screwdrivers. To my surprise, the unit simply snapped into place. It looked like this would be easier that I thought.

I was wrong. The instructions were a disaster. The "operator's manual" devoted a whole page to the normal printer DIP switch settings (of which only one has to be changed). But it didn't even mention how to assemble the front panel of the sheet feeder.

The manual went into depth on what thicknesses of forms the printer would take, but it never once mentioned how to load paper. After explaining that paper must be fanned to get air between each sheet, it simply says "Load paper." Luckily, this proved to be no problem. Simply place the paper into the input tray and push back on the tray to let the paper fall into place.

The feeder is actually simple enough for anyone to install and use. It was also styled to match the printer, so it looks like an original component—a nice touch.

Now came the important part—the performance test. I loaded AtariWriter Plus for a test run, ran a few single test sheets, then loaded the feeder with my finest letterhead and ran a mail-merge form letter. As I watched, the first copy effortlessly ran through the printer and came to rest in the output tray. "Not bad," I thought, and I left the computer to its business.

When I returned, I discovered something that, once again, the manual failed to mention. With the printer in sheet feeder mode, the page length is 60 lines, as opposed to the normal 66. Each succeeding sheet printed was six lines higher than the last. While all I had to do was change the page length in AtariWriter Plus to 120 instead of 132 and the top margin to 2, I had still wasted quite a bit of paper.

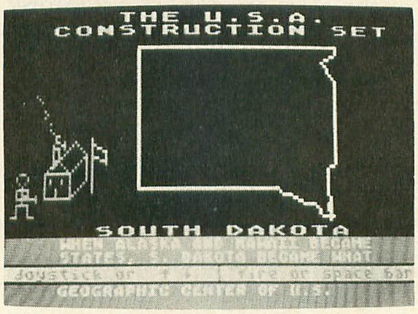
But aside from the inadequate manual, I enjoy the convenience of my BDT Sheet Feeder. I use copier paper for normal printouts—at about one-third the cost of laser-edge paper. For someone who prints a lot, changes paper often and would like to use single sheets, the BDT Sheet Feeder is a must.

USA CONSTRUCTION SET

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$9.95, 48K disk
CIRCLE **150** ON READER SERVICE CARD

Reviewed by Gregg Pearlman

If it wasn't for the **USA Construction**



Set, I might never have known that North Carolina's state motto is "To be, rather than to seem," or that there's a marble quarry in Proctor, Vermont.

For just $9.95, the USA Construction Set gives you a program disk, plus two data disks that each contain files full of questions for half of the states. The files can easily be edited and enlarged, so you'll have a constant variety of questions to be answered.

In the upper half of the screen, the game quickly draws the outline of the state you've selected. But the rest of the action takes place in the lower half, so graphics don't really play a major part in the game.

The questions themselves are a problem, however. EZuse's earlier Quizmaster Construction Set (reviewed in **Antic**, November 1986) gave multiple choice quizzes, but the USA Construction Set does things differently. Each question has only one possible answer and you must use the joystick to select from *all* the answers in the file. Suppose you choose a quiz on New Mexico and the question is "What is the state capital?" All you need to do is move the joystick up or down, and when "Santa Fe" appears press the fire button.

The problem lies in the fact that a 20-question file has 20 answers total. After you've answered one question, you eliminate the need for one answer — unless the file has two questions which could be answered with "Santa Fe."

The upshot is it's not difficult to figure out that the state capital of Wisconsin is *not* May 29, 1848, the state flower is *not* "On, Wisconsin," and the state tree is *not* Milwaukee. Once you've got all the "nots" out of the way, the correct answers aren't hard to find. The quiz becomes more like a matching test.

What's good about the USA Construction is that you'll learn something from it. There are plenty of history and statehood buffs who don't necessarily know the date of admission for Rhode Island. And the USA Construction Set is a good source of such information. Younger students should enjoy the sights and sounds, and they can learn as well.

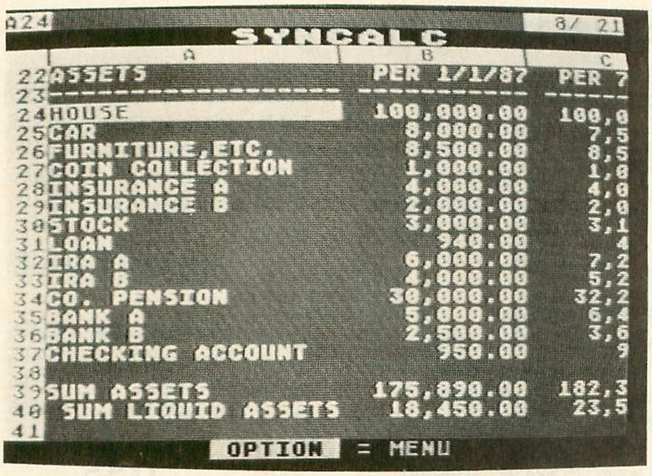
However, if you decide to add to a file, it will take considerably longer to find a right answer in a sea of wrong ones. Can you imagine a file containing 1,000 questions and answers instead of the 20 provided? Possibly the game should have an option to type in the correct answer if you know it offhand.

YOUR NET WORTH?
continued from page 46

respective cells in column B. The checking account is lower than projected—only $963—so this value is entered into B37. All of the assets, including the sum of the assets and the sum of the liquid assets, automatically change.

Any new assets are entered into the file in their proper places between the current entries. The spreadsheet

Keep your SynCalc manual handy.



should automatically accept any new or deleted entry and readjust the resulting expressions in the remaining cells.

The current values for the Visa, credit card and bank loans are entered in column B. Here, Tom's projected values were correct and the values in column C go into the respective cells in column B. The house and car loan entries are revised automatically by the changes in cells B8 and B15.

The net worth file is now ready for you to examine and analyze, this year and for years to come. Some experts believe your net worth should show an annual growth of about 10%.

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CIRCLE **189** ON READER SERVICE CARD

Gordon Toomey is an aerospace engineer from Rancho Palos Verdes in Southern California

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Secrets of AtariWriter Plus

Get more power from this word processor

BY CAROLYN HOGLIN

After you succeed at getting AtariWriter Plus fully configured to the specific needs of your own hardware system, using this fine word processor becomes a real joy. Everything works exactly as it should, characters are never dropped, and search-and-replace is so vastly improved over the original AtariWriter that it alone is almost reason enough to purchase the new software. Maximum file size is limited if you're not using the 130XE computer, but the chaining feature works very well and pretty much makes up for this.

Here are the most important things I needed to learn about AtariWriter Plus through my own personal experimentation. (*Please note that Antic doesn't have the hardware in-house to test* all *these specialized tips prior to publication. Let us know if you find any fixes necessary.*—ANTIC ED)

DOUBLE DENSITY

I wasn't so excited about AtariWriter Plus when I first tried it. I was disappointed to find it was on a copy-protected disk with Atari DOS 2.5. Since I have double-sided/double-density drives, I naturally like to use them to their fullest advantage. What a drag to have all my text files in single-density only. (My drives don't work in enhanced density.) Worse yet, none of my old files in double or quadruple density could be accessed from the new program.

> Get the most out of AtariWriter Plus.

Then I loaded TOPDOS (configured to be density-wise), put AtariWriter Plus back into drive 1, and binary-loaded (option L) the AUTORUN.SYS file. Voila—the program came up as usual and could now read all my disks. I liked it a lot better already. But this method became a nuisance and took a *long* time to get running.

Eventually I was brave enough to write a new DOS file to my program disk. (This, of course, voids your Atari warranty, so be warned.) I'm a little suspicious about the DUP.SYS file on the disk, so I didn't replace it but instead wrote DOS.SYS only. In TOPDOS you must also rename AUTORUN.SYS to AUTORUN.AUT. Now everything works as intended, with one exception—I must make certain that my 850 interface is turned off before booting AtariWriter Plus. Apparently the built-in code included in the AUTORUN.SYS file to boot the RS-232 handler is incompatible with other disk operating systems—no big deal after you realize it.

MARK OF ZERO

I have heard complaints about a bug that makes AtariWriter Plus print a zero in the upper left corner of each page. This *isn't* really a bug. If you have an Epson-compatible printer that does not have a proportional print option (or uses a different escape code for it) and you use the FX-80 printer driver from the program disk, your printer will receive the code to cancel proportional print for each font except Font 3. The FX-80 code is [ESC]-[p] [0]. Your printer may discard the first two characters as a meaningless escape code and then print the 0 as instructed. If you choose Font 3, you might get a 1 at the top of each page.

The solution is to create and use a custom printer driver tailored especially for your printer. My driver for the Epson FX-85 defines all nine fonts and lets me write superscripts and subscripts with [SELECT][UP-ARROW] or [SELECT][DOWN-ARROW], as well as with Fonts 4 and 5. In addition, two-column printing is now accomplished by printing one column and then backrolling the paper for the second one. This does away with certain limitations imposed when both columns are printed together—as is necessary with many printers.

MARGIN MIXUP

The left and right margin numbers on the Global Format screen assume that the first printer column is 0 and the last one (in picas) is 79. For reasons known only to Atari, the Print Preview feature numbers these columns beginning with 1. If you choose 80 as your right margin, your printout won't be what you expect. The rule is: Your right margin setting must not exceed one less than the maximum number of columns available with a particular font.

If your printer offers elite spacing (12 characters per inch), choose that font and set margins L6, R45, M50, and N89 for an ideal two-column printout.

STRING TOO LONG

The AtariWriter Plus manual doesn't mention an error that pops up every so often: STRING TOO LONG. This aborts your printing or Print Preview with no other explanation. What's happening is that a string of characters somewhere in your file is too long to fit on the line you have defined with your margin settings.

The program considers this string to be a very long "word" and is reluctant to break it up. The string often turns out to be a series of dashes or underlines used in a form of some kind. The solution is to break the string at the end of the lines with a space or a [RETURN]. You can use the Print Preview to check that you did it right.

Incidentally, if you need a continuous blank underline in a form, press the inverse key [ ] before and after typing the underline. Then your printer will not produce individual underline characters.

And don't forget that you can extend the default of 38 screen columns in the edit mode up to 249 columns with [OPTION] [C]. This lets you set real TAB stops for a chart, for instance, and scroll across the screen while you enter or edit text and make sure that your columns are lined up properly. This sort of editing is almost impossible with a fixed 38-column screen, such as the original AtariWriter had. However, the scrolling makes for a rather jerky screen, so I use extended columns only when needed. Otherwise I use 40 columns—and always when proofreading.

ESCAPE CODES

The manual suggests that instead of entering escape codes with [CONTROL]-[O] [27], you can hold down the [SHIFT] key and press [ESC] twice. However, the resulting code is not the escape symbol, but rather the same symbol produced by [OPTION] [INSERT]. When I try to print or Print Preview the file, the program asks me to "MAKE ENTRY, PRESS RETURN." Therefore I stick to [CONTROL]-[O] [27] when entering escape codes for my printer.

You can use double-density files and print to any printer —you can print symbols you didn't even know you had.

If you need curly brackets, use [CONTROL] [;] for the left one and [CONTROL] [CLEAR] for the right. (This *won't* clear your screen.) These keystrokes produce graphic characters on your screen, but the curly brackets will appear correctly on your paper. And have you wondered where to find a lefthand single quotation mark? The [CONTROL] [.] will print this character if you should happen to need it.

CHAINING FILES

When printing multiple-file text, if you attempt to "chain" to files that were prepared on another word processor instead of AtariWriter Plus, you'll probably lose some of your text from the beginning of each file after the first. Apparently, the program thinks it is stripping off the Global Format commands which, of course, are not present in non-AtariWriter text files. The solution: Load each file into AtariWriter Plus and RE-save it. If it was created with the AtariWriter cartridge, be sure to remove the old formatting line from the top of each file before the re-save.

For some reason, I have not found a way to successfully chain files together using SmartDOS.

TINY FONT

If your printer prints superscript or subscript *font* and can produce 1/2-line spacing, change the S command on the Global Format screen to 1 (or use [CONTROL] [S] for an in-text change). You'll get the obligatory fine print for that contract. Or you can use it to get a lot of printing in a small space—on a disk label, for example.

ATARI 825

If you have an Atari 825 or a Centronics parallel printer and use the built-in 825 driver, you can't get 1 1/2-line spacing by setting S on the Global Format screen to 3, as instructed in the manual. And when you use headers or footers, each page after the first will often begin two lines higher than the previous one.

Here we *do* have a real bug in AtariWriter Plus. There is a code in the printer driver for a 1/2-line feed and carriage return. In the 825 driver the code mistakenly calls for a *reverse* 1/2-line feed. This error causes both problems above. I have successfully fixed it by changing byte $37 in sector 276 from $1E to $1C. (In the 130XE version, the byte to change is $72 in sector 111.) Or you can make a corrected printer driver for your 825.

If you use the XMM801 and meet similar problems, try changing bytes $0A and $63 in sector 495 (byte $45 in sector 115 and byte $22 in sector 116 in the 130XE version). Each change is from $1E to $1C.

Note that the two versions of AtariWriter Plus require corrections in different locations!

continued on next page

CUSTOM DRIVER

The manual discusses this procedure in detail, but it still doesn't cover everything you need to know to create the perfect driver for your printer.

Use ATASCII code 155 for "LINE FEED AND CARRIAGE RETURN," even if your printer manual tells you something different.

FIGURE 1

ATARIWRITER PLUS EPSON FX-85 PRINTER DRIVER CODES

INIT EVERY LINE									
LINE FEED AND CR	155								
UNDERLINE OFF	27	45	0						
UNDERLINE ON	27	45	1						
BACKSPACE	8								
ELONGATE OFF	20								
ELONGATE ON	14								
BOLD OFF	27	72							
BOLD ON	27	71							
UP 1/2 LINE	27	106	18						
DOWN 1/2 LINE	27	74	18						
DOWN 1/2 LINE & CR	27	65	6	155	27	65	12		
CR WITH NO LF	27	65	0	155	27	65	12		
Font #1 PICA	27	112	48	27	84	27	80	18	
Font #2 CONDENSED	27	112	48	27	84	27	80	15	
Font #3 PROPORTIONAL	27	112	49	27	84	27	80	18	
Font #4 SUPERSCRIPT	27	112	48	27	80	15	27	83	48
Font #5 SUBSCRIPT	27	112	48	27	80	15	27	83	49
Font #6 ELITE	27	112	48	27	84	18	27	77	
Font #7 NLQ	27	120	49	27	84				
Font #8 ITALICS ON	27	120	48	27	52				
Font #9 ITALICS OFF	27	53							

Should "BOLD" be emphasized or double-strike? I chose double-strike so that it works with elite and condensed, as well as with pica (but not with near letter-quality).

If your printer cannot do reverse line feeds, be sure to leave the "UP 1/2 LINE" code blank. Entering even a zero here will make it impossible to print double columns correctly. While an entry can be changed, you can't delete it entirely—you must start all over again by rebooting the program.

The trickiest code to define is the "DOWN 1/2 LINE AND CARRIAGE RETURN." The manual says you must define this one only if you intend to use 1/2-line spacing with the superscript or subscript fonts. Actually, AtariWriter Plus uses this code when printing headers or footers, as well as when printing 1 1/2-line spacing. It may require a trial-and-error process before you get this one right.

You'd think that you should merely add a 155 to whatever you used for the previous "DOWN 1/2 LINE." With some printers—the Atari 825, for instance—this *is* what works. With other printers (including the Epsons), this code produces a 1/2-line feed followed by a *full* linefeed, and it may print headers and/or footers two lines lower on each successive page. And 1 1/2-line spacing becomes 2 1/2-line spacing.

Therefore you must define the code for *setting* 1/2-line spacing (1/12 inch), followed by code 155, followed by the code for *setting* full-line spacing (1/6 inch).

The "RETURN WITH NO LINE FEED" or S=0 isn't needed very often, but I have used it on occasion. Enter the code for 0-line spacing if your printer allows this, followed by code 155, followed by the code for full-line spacing (1/6 inch).

Now for defining your fonts. You must remember that many of the commands are cumulative, so you must cancel the ones you don't want while enabling the one you *do* want. Many Epsons have a Master Select code that does this to some extent, but I don't recommend using these codes here. They are generally sent to your printer at the beginning of each page and, therefore, will cancel any additional codes for emphasized, etc., that you've entered in your text or enabled through the SelecType push-button feature on your printer.

Figure 1 is my Epson FX-85 printer driver.

On the Epson, italics are not available with near letter-quality (NLQ), so [CONTROL]-[G] [8] produces draft italics. They will look better with NLQ if you also type [SELECT] [.] before and after the italicized words to match the blackness of the NLQ. [CONTROL]-[G] [9] turns italics off, but if you're using NLQ, you must also type [CONTROL]-[G] [7] to re-enable near letter quality.

If you use [CONTROL]-[G] [4] to enter a footnote number (instead of [SELECT] [UP-ARROW]), you must use a [CONTROL] [O] code for your number. For instance if you wanted to enter a reference to footnote 1 and typed [CONTROL]-[G] [4], followed by a [1], the program will think you have asked for [CONTROL]-[G] [41], and will give you an INVALID TYPE FONT error. Instead, type [CONTROL]-[G] [1] [CONTROL]-[O] [49] [CONTROL]-[G] [x] (where [x] is whatever font you've been using). This gives you a raised "1" where you want it. The codes for digits 0-9 are 48-57, inclusive.

*Carolyn Hoglin of Orlando, Florida is a homemaker and former secretary. She was given an Atari 8-bit computer in 1982 and has been programming ever since. This is her first publication in **Antic**.*

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THE ST RESOURCE

ANTIC JULY 1987



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ST Disk Subscribers: For instructions on how to transfer **Antic** ST programs to 3½-inch disk, see ST Help File on Side B of monthly disk. ST programs from previous issues are available in 3½-inch format from The Catalog.

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CIRCLE 058 ON READER SERVICE CARD

Turning the Corner to GFA Basic

Entering a new world of power

By Patrick Bass, Antic Technical Editor

"Let the joyous news be spread: The wicked old witch, at last, is dead." I recently watched *The Wizard of Oz* again, and when the Munchkin mayor stood before Dorothy and made the above proclamation, I just happened to be sitting at an ST using GFA BASIC. I was struck by how closely his statement paralleled my feelings on the old ST BASIC and brash newcomer GFA BASIC.

Let's face facts. ST BASIC is not a very good implementation of the BASIC language. The windows get in the way, it has trouble with general math and double precision variables, and the editor is a joke, among its other foibles. But BASIC it is, and it *is* given away with each ST, so a lot of people wound up with it, even though they consider it the "Wicked Old Witch".

NEW KID ON THE BLOCK

Enter, stage right, GFA Systemtechnik, of West Germany. The ST computer is a huge success in Europe, and in West Germany, it's the best-selling personal computer. GFA has written a BASIC which comes closer than anything else **Antic** has seen to being the perfect BASIC. MichTron Software got the North American distribution rights, and it looks like they've made a good choice. In my opinion, it drops a big, big house right on top of ST BASIC and squashes it *flat*.

This month, to show off the advantages of GFA BASIC, I decided to whip up a small demonstration program in both GFA *and* ST BASIC. Longtime **Antic** readers may remember the first C program I published, way back in the August 1985 issue, called *GEM Color Cascade*. It's a small, very simple program, which I've programmed a version of on every new computer and new computer language I've had my hands on in the last ten years. Its purpose in life is to plot a dotted sine wave running from left to right, and plot a cosine wave running from right to left, and then connect the two points.

TYPING IT IN

We have two listings this month. *Listing 1* is the GFA BASIC version, and *Listing 2* is the same program written in ST BASIC.

If you've got GFA BASIC, double-click on its icon to boot it up and get it running. When the edit screen comes up, type in *Listing 1*, GFACOSIN.BAS, and save a copy of it to disk. (Sorry, we don't have a GFA TYPO program yet.) To try the ST BASIC version, power up ST BASIC, and type in *Listing 2*, STCOSIN.BAS. Check your typing with ST TYPO. If any of the checksums don't match, recheck that line carefully. Both BASIC programs are also located on Side B of the **Antic** monthly disk. Use LinkLine (or some other, more cumbersome method) to shoot the files over to your ST. (If you have any questions about LinkLine, see Side B on the **Antic** disk.)

PROGRAM BREAKDOWN

Take a look at both BASIC listings in the back of the magazine, and compare their structure. Both programs were designed to be as similar as possible.

Right off the bat, you'll notice GFA BASIC doesn't use line numbers. Don't worry—GFA BASIC doesn't need line numbers. In fact, GFA BASIC will choke on any line you try to slip it with a line number.

The top five lines are remarks, describing what the program is and who wrote it. The next small block of code determines the resolution you powered up in, and sets screen limits accordingly. In GFA BASIC, the **XBIOS(4)** call describes the Atari XBIOS call **Getrez( )**, which returns a number corresponding to the resolution we are currently in. ST BASIC performs this with a PEEK to **systab**. I also threw a little Boolean algebra in there to shorten the code. Next, below the lines which assign values to **Xres** and **Yres** we assign mouse button bit-pattern values to mnemonic variables.

Now we enter the main loop of the program. Before we draw each display, select a random sine and cosine **Amplitude**, meaning how far up and down on the screen the pattern will get, select a random sine and cosine

continued on next page

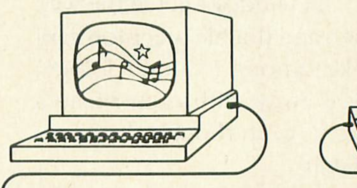
Period, which describes how squeezed the pattern appears, select a random color for the display to be drawn in, and choose a Step **Size** to determine how crowded the display gets.

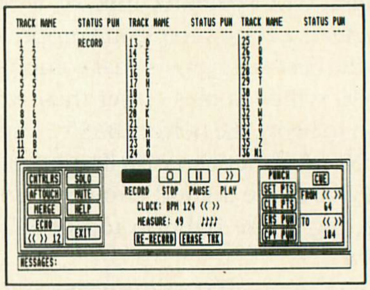
Next, we start our looping structure which will actually draw the image on screen. Starting on the left side, and continuing across the screen, the program computes the **Sine** and **Cosine** of the current point, plots them, and then connects the two points. Directly after the program draws the connecting line, it runs over and checks the mouse for activity. If the *left* mouse button is pressed, then the program will finish the loop and drop out. If the *right* mouse button is pressed, clear the screen. Then it repeats the loop until the program ends.

CONCLUSIONS

GFA BASIC is a vastly better implementation of the BASIC language than ST BASIC is. For example, notice how clean the mouse call is. While the **ST Resource** will continue to accept submissions written in ST BASIC, if we get the same application written in GFA BASIC we'll probably give preference to the GFA BASIC version. If you've been looking for a more powerful language than ST BASIC, but don't want to move up to Pascal or C, then run, don't walk, and check out GFA BASIC today.

Listing on page 92





THE BATTLE OF 1050 ENHANCEMENTS

HAPPY 1050 VS. DUPLICATOR 1050

	HAPPY	DUPLICATOR
1. How big is the track buffer in your enhancement?	8K	8K
2. Can I give the copies I make with your enhancement to my friends?	Yes, but the newer programs will only run on the Happy drive, so give your original to your friend.	Yes, make as many copies as you want & give them to all your friends.
3. What is the size of your operating system?	4K	8K
4. Do you have the capabilities to make copies of protected disks in D½ or D.D?	No, it wasn't designed in our 1982 operating system.	Yes, it was designed in our 1985 operating system.
5. If a new form of protection becomes widely used do you have the capabilities to meet this challenge?	No.	Yes, e.g. laser proposed, hardware keys, non-standard density dependent protection schemes.
6. Can programs that require a hardware key be backed up with your enhancement?	No.	Yes.
7. Can you copy 20 sector or more copy guard schemes?	Yes, but it is dependent on Happy drive.	Yes, will work on any drive. e.g. Eidelon Koronis Rift.
8. How long does it take to deprogram these enhancements?	15 seconds.	3/4 second.
9. Can a utility or game be booted in your Warp Speed or Ultra Speed?	No.	Yes.
10. Do you provide an Ultra or Warp Speed DOS with your enhancement?	Yes, Top DOS. It costs $39.95	No need to. Any DOS works in our Ultra Speed Mode.

	HAPPY	DUPLICATOR
11. Do you provide a Double Density DOS with your enhancement?	Yes, Top DOS. It costs $39.95	Yes, it is free.
12. Does your copy program inform the user of the various types of protection encountered while making your back-up?	No.	Yes.
13. Does your main copy program run in Ultra or Warp Speed?	Yes.	Yes.
14. Do you provide Tech notes for your enhancements?	No.	Yes, we just completed our notes & are now available.
15. How many upgrades have you done in the past 12 months?	1	4
16. These pre-defined programs that you have: Do they run on any drive?	No, it is dependent on the Happy drive only.	Yes. It will run on any drive, they remove the protection & are able to be copied with any DOS.
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18. How many utilities does your enhancement include?	5.	10.
19. How much is your enhancement?	$149.95	$99.95

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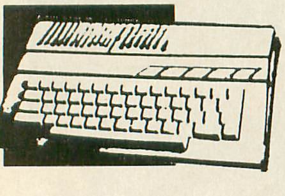
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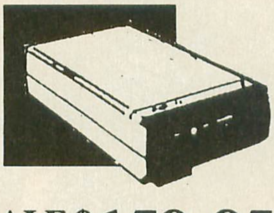


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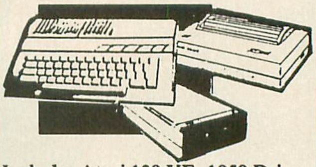
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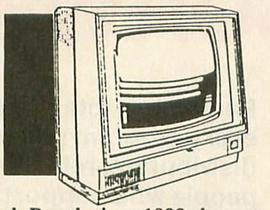
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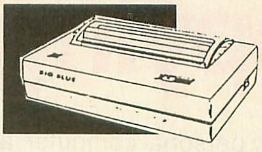


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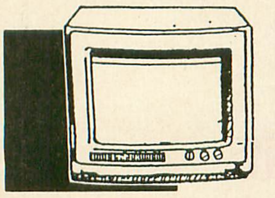
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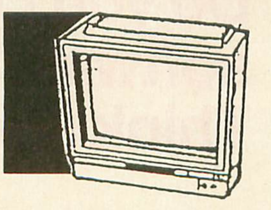


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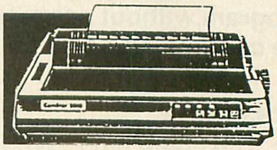


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CIRCLE 231 ON READER SERVICE CARD

Reviewed by David Plotkin

MicroCube's **MicroFlyte** joystick is an alternate controller primarily designed for use with SubLOGIC's Flight Simulator II. It has been available for a while on the eight-bit Ataris, and has recently been released in an ST version.

The MicroFlyte joystick is a box that plugs into the mouse port on the side of your ST. It contains a self-centering joystick, a reset button, the equivalent of the right and left buttons on the mouse, and two buttons for controlling the throttle (up and down). This little device makes a tremendous difference in how simple it is to fly Flight Simulator II.

To use the joystick, simply unplug the mouse from the front port of your ST and plug the joystick in. It gets its power from the computer, and a power light will come on to indicate that everything is hooked up properly. You then hold down the Reset button for a few seconds. Finally, you either press the Reset button once for "mouse" mode and twice for "FS2" mode. In mouse mode, pushing the joystick in any direction causes the mouse pointer to travel smoothly in that direction. You can use the joystick in place of a mouse if you don't have enough desk space. "FS2" mode is the normal one you use to fly the Flight Simulator. Pressing the joystick in any direction causes the aircraft to respond appropriately: for example, pulling back on the stick will put you in a climb. The throttle buttons will advance or retard the throttle, and double as an alternate set of mousebuttons when you are in the "mouse" mode.

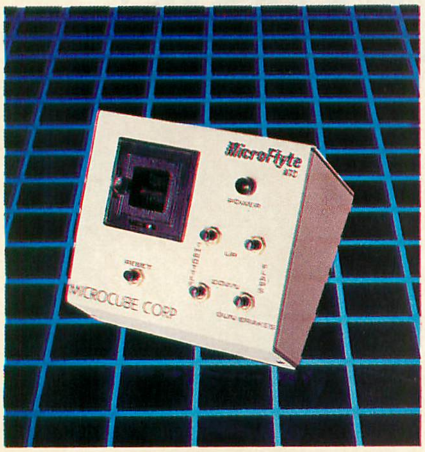
I can't tell you what a joy the MicroFlyte joystick is to use with Flight Simulator. The self-centering stick eliminates the wild weaving and overcorrection (causing frequent crashes) of control with the mouse. Maneuvers that would be suicide (actually, they *were* suicide!) with a mouse are easily achieved with the joystick. I successfully flew *under* both of the bridges in San Francisco Bay, buzzed the Transamerica Pyramid and landed on Alcatraz Island, all without a crash. And my first successful landing did not occur until I had switched to the joystick.

You will have to make a few minor adjustments when using the joystick. First, when you switch to the "cursor" mode of FS2, where you can set various options (maps, weather, spotter plane, etc.), you'll also want to press the Reset button on the stick to switch to "mouse" mode, because the arrow on the screen is too difficult to control otherwise. Once you have finished setting your options, press the Reset button twice to return to "FS2" mode and resume your flight. Also, you will want to pay more attention to how your aircraft is "trimmed" for level flight. Normally, depending on your throttle setting, the aircraft will have a tendency to either dive or climb. When using the mouse, it is simple to compensate for this by setting the controls. With the self-centering joystick, though, compensating means you have to apply constant pressure to the stick, which can make turns a little tricky. However, you can easily trim the aircraft either up or down by using the keys on the numeric key pad to adjust the elevators, to the point where a centered joystick means more-or-less level flight. There are also trim tabs on the stick itself, which I have found work well for finer adjustments.

The instructions that came with the stick were preliminary and rather cryptic. I hope the production version will have better instructions included.

The MicroFlyte joystick for the Atari ST is different from the eight-bit version in a very significant way. The eight-bit version required software patches for it to work with various programs. The ST version includes its

continued on next page



own microprocessor and ROM, and can be used anywhere a mouse is. I have tried it on a variety of programs, and it works better with some than with others. For example, Starglider really works better with a mouse, although it will work with this stick.

I just love this joystick. For me it has turned using Flight Simulator II from a frustrating experience to a real pleasure. I find myself booting up whenever I have time and going for scenic rides. I can't wait until the scenery disks come out. For anyone who loves Flight Simulator but has a hard time with the mouse flight controls, this is the answer.

ARCTIC FOX

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CIRCLE 227 ON READER SERVICE CARD

Reviewed by David Plotkin

Arctic Fox from Electronic Arts is a remarkably addicting battle simulation featuring excellent graphics, animation, split-second timing and strategy to produce a superior gaming experience. You are placed at the controls of a super-tank, equipped with a high-caliber gun, guided missiles, mines, heavy armor, and a top speed of 100 mph. The mission: penetrate the defenses of an alien enemy near the South Pole and destroy the enemy's main fortress. The hazards are many, including heavy and light tanks, rocket launchers, radar stations, two communications forts and devilishly fast fighters. The rocket launchers are especially bad news, as a single hit can so heavily damage your tank that the game is effectively over. There are natural obstacles as well: rifts (driving into one is instant death), snowfields, electrical storms that mess up your instruments, and slippery mud.

The enemy's procedure for world domination is clever: convert all our atmosphere to a poisonous gas identical to their atmosphere. To this end, oxygen converter towers are placed periodically. Destroying them delays the conversion process, and this gives you more time to find and destroy the enemy fortress. An oxygen gauge mounted on the control panel will tell you how much oxygen remains in the atmosphere. If there is none left, then you die and the game is over.

Arctic Fox is a heavily strategic game. Enemy equipment is all located within a square about 67 miles on a side. This square is bounded by a force field, and the entire game is played within this area. Fixed enemy defenses such as rocket launchers, radar, forts and oxygen converters are in the same locations each time you play. Some concentrations of firepower are too much for Arctic Fox. I recommend that you make a map of the locations of the enemy defenses. The enemy communications fort will marshall strike forces against you, so it is a good idea to knock it out, though I have won this game without doing so. But even finding the forts is tough, although mapping enemy defenses will suggest where the forts might be. . .

The graphics and sound are good. The screen shows all instruments, and the view out the window shows a high resolution, three dimensional battlefield with rocks, mountains, ridges, rifts, snow fields, and, all too often, enemy forces. A small screen on the instrument panel shows a radar view, upon which enemy forces appear as red blips. This same screen is also the guidance system for your missiles, in effect doubling as a miniature flight simulator. The view on this small screen is from the nose camera of the missile, so accurate guidance is possible. You can even see your guided missiles and shells through your cockpit window. The animation is fairly smooth, although it does get a bit jerky when there is a lot of movement on the screen. There can also be a noticeable delay before response to your input, but this really does not detract from the program.



Huge electrical storms can blot out your view and mess up your radar. During these storms, you may only see something during the flashes of lightning. This is a particularly realistic effect. Other touches include reduced speed of your tank on snow and a tendency to skid when driving on mud.

The Arctic Fox is heavily armed. Your main armament is a heavy caliber, turret-mounted cannon. It can fire rapidly, with a short time between reloads. This cannon is effective against all enemies, with multiple hits necessary on some. Your guided missiles are awesome weapons—they can take out just about anything with a single hit. They even have a radar tracking system, which won't work with all of

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Midisoft Studio

MIDI editing with ease

Reviewed by Jan Moorhead

In the world of MIDI, there are lots of developers trying to sell sequencers, patch librarians, editors and every other type of music software imaginable. In this welter of hype and hoopla it's a real pleasure to find a package that does what it sets out to do, cleanly, efficiently and without a lot of fuss. If I were looking for one word to describe **MIDIsoft Studio**, it would be *clarity.* I wish every package I work with was this straight forward.

Something you become inured to when working with computers is the proliferation of bad manuals. It becomes normal to struggle with documents that are barely comprehensible. With this in mind, I was completely taken by surprise when confronted with MIDIsoft Studio's manual. They have done a splendid job in producing a clear, well-organized and well-thought-out document. It has a glossary that should be very useful to those just getting involved with MIDI systems. The table of contents, in conjunction with the glossary, make up for its only weakness, which is the lack of an index. Overall, though, it's a clean and impressive effort.

MIDIsoft Studio, as opposed to sequencers that work like drum machines, functions like a multi-track tape recorder with 32 tracks. The metaphor is carried to the *n*th degree with Fast Forward, Reverse and other tape recorder-like "buttons" on the screen. This makes your operations very straightforward; so much so that with a little savvy, you could run this program quite easily without reading the manual at all.

You have one primary work screen, and can access everything through the usual drop-down windows. You can see 12 tracks at a time and scroll up and down through the rest of the 32 tracks. There are a generous 24 characters available for labeling the tracks. In addition to having the tracks in Play, Record or Clean modes, you can turn tracks Off or Solo them. This is very useful for editing and isolating musical problems. Solo and Off perform the same useful functions as they do on a professional mixing console. After using them a bit you will find them indispensible. A caveat: There is a small inconsistency in data entry. You can enter most numeric values with the mouse or by direct entry, but in a few cases you must key them in exclusively. In addition to the usual Desk and File menus there are three menus involved in running the program: Setup, Edit and MIDI.

The Setup window contains some very nice features. Though the program is aimed at a large general audience, some of the features nestled here make it attractive for serious professional users as well. The program will recognize or send a MIDI Song Position Pointer. This is important for synchronizing your sequencer with other devices that have an internal clock and record song information, such as drum machines, other sequencers, and sequencer-to-tape synchronizers. The MIDI Song Position Pointer can be sent or received so that the receiving device knows its position in a composition at any point in time. This is particularly critical if you're doing work with video or film.

Another advanced feature is its control of the various MIDI modes and Local On/Off for each channel. Local On/Off disconnects your keyboard from its own internal sound generators. "Great," you say. "Just what I wanted—a function that makes it impossible to play my synth!" Ah, but what it does allow you to do is play *other* synths through MIDI while your sequencer plays the internal sound generators of your master keyboard. This and the other MIDI features allow you to make better use of the keyboards you have and lessen the need for a sophisticated mother keyboard. Personally, I've never liked the idea of spending money on something that doesn't make any noise, so I've always avoided buying a dedicated master controller. This feature gives you one of the important elements of such a controller.

The Setup also gives you control over the number of bars of count off, the meter, After-Touch filtering, the output of the MIDI clock and a few

continued on next page

special features for the advanced user. My particular favorite is "Fast Mouse," which isn't. What it really does is reduce the distance the mouse has to travel on the pad to move the cursor a particular distance on the screen. You get more done with less movement. The so-called "Expert Mode" is something that, personally, I wouldn't touch with a ten-foot MIDI cord. It removes the warning flags and windows for many of the destructive commands. I'm the kind of guy who needs to be slowed down—I'm the first one to get overconfident and blithely throw three hours of work down the toilet. I'll leave "Expert Mode" to those less breezy and more methodical individuals.

"Auto-Rewind" is a nice feature. It saves you some time when you're setting up for the next bit of recording. There is also an After-Touch Filter in the Setup window, though with a megabyte of memory on the 1040 ST (and more on the Mega STs) there is little worry about using up the available memory. If you're writing pieces that long, perhaps you should consider your audience's endurance! I can see that, occasionally, you may encounter situations where the After-Touch is controlling a feature you'd rather not use. For instance, perhaps when you are recording a track on your master keyboard the After-Touch is controlling Modulation. When the track is sent to the appropriate module, the patch you want happens to use After-Touch to control Pitch Bend. In a situation such as that you could use the After-Touch filter to remove the undesirable After-Touch information.

The Edit window has two general types of editing available: edits affecting an entire track and edits affecting portions of a track. Under the former you have Erase, Copy, Move, and Combine (often referred to as Merge in other applications). What is more interesting is the approach to area and fine point editing. They have not implemented any clever graphic representations to make life sweet for you, but they do have an effective means of achieving this all-important level of control. I've spoken to the developers, who've assured me that they do have some interesting developments in mind for this area. Eventually, you'll be able to do editing through graphical notation. The 1040ST ought to be eminently well-suited for this approach.

The four modes of editing that you do have at this time are Insert, Delete, Paste and Erase. Erase removes information from a track but leaves a hole. Delete, however, removes the information and the resulting blank area, leaving the track shortened. Using these modes along with the Edit Mark windows should allow you to do any standard editing that you wish. Generally, editing with numbers isn't as much fun as being able to look at something and say "That's him! That's the bad note!" and promptly zap it. To make finding the offending error a little easier, they have created Step Play. By using the right mouse button on the screen's Play "button" you can step through part of a track one note or chord at a time. This makes the setting of Edit points a lot more intuitive and less like a lesson in business accounting.

When working with computers, you get used to bad manuals. But MIDIsoft Studio's manual took me completely by surprise —it's splendid and well-organized.

Another feature with some nice elements that we're seeing in more sequencers nowadays is the quantization, which allows you to control not merely where notes start but their lengths as well. There are a total of four modes: no quantization, controlling note attacks, controlling note endings, or both. MIDIsoft also allows transposition of tracks or portions of tracks.

I'm not a big fan of step entry but MIDIsoft Studio's system seems to work with less hassle than most. By using one hand to select pitches on the keyboard and the other to control the parameters of the Step Entry window, you ought to be able to really fly along, with practice. The program will receive velocity information from the keyboard so this form of data entry should be more expressive than most—again, with practice.

The MIDI window allows you to do a MIDI reset, send a message to the synths for self-tuning, and send Song Selection cues for other sequencers. The handiest item is the All Notes Off command. Anyone who's spent much time working with Yamaha's DX/TX line of FM modulation synths is familiar with their special "Insta-drone" feature. It's nice to be able to fix that kind of problem without having to search through your modules to find out which one has started improvising without permission.

The people at MIDISoft have an attitude toward product development that's very promising for future development. I have seen two releases so far, and the second is a naturally evolved and improved version. The program as it stands does not feature a lot of bells and whistles but concentrates on the basics, which are implemented intelligently. As future MIDIsoft releases offer more and more power, the program should retain its clarity and ease of use if the developers continue as they have. ▲

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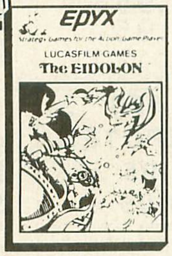
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the enemy defenses. In those cases, you can guide the missile all the way to the target. Since you use the same joystick to steer the missile as you do to control the tank, you have to be careful not to steer into an enemy or fall into a rift while controlling the missile.

There are two modes of control, selectable with a button on the control panel. The first allows you to control the speed of the tank by pressing the joystick forward and back; the second allows you to control gun angle with the joystick. This second mode is by far the more useful! In this mode, there is another button that varies your speed and direction between full speed in the foward direction and full speed reverse. I normally stay in this second mode. Other buttons control your mines, launching of missiles, and digging into the snow to hide. The control panel will also let you know when you have been spotted, and how heavily damaged you are.

As you can tell, controlling Arctic Fox will take some practice. To help you, the buttons are laid out on the screen in the same configuration as they are on your keyboard.

Arctic Fox has several different game modes. In the practice mode, you can choose various special features, but can't win the game. An enemy preview mode presents the enemies and descriptions for you to get familiar with the game. In beginner mode, you always start out in the same place on the map. In expert mode, you can start out in different places, and enemy forces are tougher. The damage portion of this game is somewhat frustrating. There is no way to get repairs, and when a main system such as the gun or treads is damaged, there is little point in continuing the simulation. You can abort at any time, but I would have preferred to be able to beat a hasty retreat for repairs. Another potential frustration is the delay between giving a command and the response. This is something you become used to quickly, and to be fair, a real tank certainly doesn't respond instantly!

Arctic Fox is a very realistic game/simulation with a lot of playability. It is a very welcome piece of software from Electronic Arts, a company that has not paid a lot of attention to the ST. If you enjoy action and strategy with 3-D animated graphics, you'll love Arctic Fox.

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CIRCLE **252** ON READER SERVICE CARD

Reviewed by Rick Teverbaugh

Winter Games is exciting, colorful and great fun. The only recurring problem is that to be proficient at many of the events you must either have keen memorization skills or refer continually to the documentation.

The game has seven events you can choose to compete in, taking on as many as eight people in each. There's ski jump, bobsled, figure skating, hot dog aerials, freestyle skating, speed skating and biathlon. Some events are head-to-head, meaning that two competitors must use joysticks simultaneously.

Figure skating has eight different moves, selected by joystick or from the numeric keypad. Forward skating is necessary for the double or triple axel jumps. All others require backward skating for execution. When trying a move while skating forward, start it during an open stride. But start with closed strides on backward moves. When doing camel or sit spins, try for six rotations. Any less will hurt your score, and more will make the skater dizzy and fall down. A perfect score is 6.0.

Freestyle skating offers the same eight moves, but points are awarded regardless of how many times each move is attempted. You choose the content of your two-minute program. Try to determine which moves you're best at and execute them as well and as often as possible.

Speed skating is controlled by rhythm, not joystick frenzy. Move the joystick left and right, in time with the leg movements of the skater. Too much quick movement can make the skater spend too much time in one spot.

Hot dog aerials is another exercise in memorization, though not as involved as the skating events. Only six moves are possible. The trick is to know which moves can be done in combination, and then time the leap so the skier lands on his feet. For those who want to get some safe points on the board before trying something more daring, a little hesitation after the jump before execut-



ing the move will increase the judges' tally.

Ski jump keeps you so busy watching the closeup box of the skier to correct flaws in form that you'll miss the smooth, precise execution of the graphics for this event. If the knees are bent too much, tap the joystick up. If the skis are crossed, tug the stick down. If the skier leans too far forward, tap the stick to the left—but be warned that too little lean cuts the length of the jump. Scoring is three

times the distance in meters plus style points.

Biathlon is the most demanding and versatile challenge of the seven, involving uphill, downhill and cross-country skiing. Then there's a series of targets to be picked off with the .22 caliber rifle slung across the shoulder. A heart is shown pounding away at the bottom of the screen and it's a good idea not to get it pumping too fast. When the skier stops to shoot, the sights move at the same rate as the heartbeat—it wouldn't be a bad idea to stop briefly to catch a calming breath before shooting.

Bobsled shouldn't be too tough to get decent score, with a few simple guides. The first turn is a right-handed bank, and the rest of the course has a left-right, left-right pattern except for the last curve. Stay as low as possible on the curves; going too high on the bank adds to your time.

World records are saved to the first of the package's two disks. If the competition's hot, there will be a lot of disk swapping. Five points are awarded for a gold medal, three for silver and one for bronze. After the selected number of events, the highest point winner is crowned champion.

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CIRCLE **230** ON READER SERVICE CARD

Reviewed by David Plotkin

Fast is a collection of desktop accessories. They include a built-in DOS, Editor, Cardfile, Calendar, Clock, Calculator and ASCII Table. All these accessories are assembled under one entry in the Desk menu; clicking on that entry brings up a window from which you may select the tool you want by clicking on it with the mouse or pressing the appropriate function key. The chosen accessory then appears on the screen.

ST-DOS is a resident disk operating system similar to MS-DOS. You type in commands that perform various tasks, such as formatting a disk or copying a file. Once you learn the system, this can be more efficient than using the GEM desktop. For example, to copy all the files with an extender of "DOC" from drive A to drive B, you would simply type "COPY A:*.DOC B:". This is much faster than clicking on each file in a window and dragging it to the drive icon, especially if all the files you want can't be seen in the window at once. ST-DOS allows you to set time and date, get a directory, see the contents of a file, rename a file, delete a file, and set an alarm to go off either at a certain time or in a specified number of hours and minutes from the present time. You may also lock and unlock files, make a new directory (folder) and delete an empty directory. The formatting option supports four different formats, including two that can store more information than usual on a disk. ST-DOS also supports wildcards (characters that can substitute for a letter or a group of letters in a filename).

ST-EDIT is a full-screen editor for entering text. However, it is more like the MINCE editor than a word processor. It takes over the entire screen, so you can't enter notes while looking at other information on the screen. There is also no mouse support or menus. Instead, all commands are activated by pressing a sequence of keys. ST-EDIT supports search, replace, block moves, copies and deletes, letter transposing, and some limited macros for using in the editing sessions. The keys that activate various features seem pretty strange to me, al-

continued on next page

though I'm told they are similar to the keys used in MINCE. Fortunately, all the commands are summarized on a card, and most of the time you can get by with just using the arrow keys, the Delete and Backspace keys, and the save file key ([Control][X]/[Control][S]). The editor does not word-wrap. Also, if you don't press [Return] at the end of every line, then the number of "physical" lines will be different from the number of "logical" lines. Some of the ST-EDIT commands use these numbers, so you need to keep track of them. You also need to keep an eye on your buffer size. If you run out of buffer for text, you must save the file, then reload it to obtain more space.

CARDFILE is an address book. It is set up in three levels. In the first level you choose the letter of the alphabet you want to work with. You may also print all the cards in the file, select one of two formats for all printing (list or label) and change the field names on the cards. Clicking on a letter of the alphabet brings you to level 2, which shows all the cards where the first field begins with the letter selected. You may edit a card, delete it, print selected cards, create a new card, or autodial one of the two phone numbers on the card. If you choose to create a new card or modify an existing one, this brings you to level 3, where you actually fill in the information on the card, save it or print it. You may also move to the next or previous card. The fields initially on the card are for names, addresses and phone numbers; you can further customize the cards by modifying a file called DEFAULT.DAT. This gives you the option of changing field length, text style (bold, underline, etc.), default buffer size, field position and various print options.

The other tools included in Fast are a digital clock, an ASCII table that shows the characters corresponding to each decimal and hex number, a four-function calculator with memory and percent that allows you to enter either by clicking on a button or pressing a key on the keyboard, and a calendar that displays one month at a time. To step through the months and years you use the arrow keys. The calendar doesn't remind you about what the key functions are, so I frequently found myself pressing the wrong arrow keys. You cannot access any date before 1980, and stepping through the years to 50 years in the future can take a while—one year at a time.

The documentation accompanying Fast has a number of inaccuracies and typos. In several places, the picture of a screen or dialog box doesn't match the description, text is missing on another page, and some paragraphs make absolutely no sense at all. The distinction between physical and logical lines in the editor is never made, and the ST-DOS section assumes you know quite a bit about MS-DOS. Migraph claims that most people never read the documentation for a program this simple. That may normally be true, but I'd like to see someone figure out ST-EDIT without a manual. At any rate, you can figure everything out—it just takes longer.

I have mixed feelings about Fast. As with other combination desk accessories, I find that I like some of the tools (like ST-DOS), and don't want to give up the memory for others (like ST-EDIT). Whether this package is right for you will depend on what you need.

BUZZWORD

Buzzword Game Company
5582 S. Zeno Court
Aurora, CO 80044
(303) 693-4263
$42.95

CIRCLE **228** ON READER SERVICE CARD

Reviewed by Sol Guber

Buzzword is a word-guessing game with a sophisticated strategy, suitable for both adults and children because of its multi-level play. Buzzword uses a subtle sense of humor to give clues for each set of words. The words are combined in categories and the package contains a set of cards with all the answers in the categories.

The game is quite simple to play. The upper right section of the screen contains the nine boxes that stand for the words you will be guessing. At the simplest level, each box will contain the first letter of the word and how many letters make up the word. At the bottom of the screen is a list of all the letters used in the nine words, as well as their frequency of usage. Also at the bottom of the screen is a typewriter, where you type your answers. In the upper right corner is the score. As you guess each word correctly, the number of letters available is decreased.

Before we go any further, let me give some examples of both the type of words that need to be guessed and the variety of categories. Let's pick a category at random: "A MAN'S CASTLE." Now try to guess three words: a six-letter word starting with D, a six-letter word starting with S, and a six-letter word starting with W. If you figured out that the words are duplex, shanty, and wigwam, your word reasoning is excellent. Let's try another category called "NO NUTRITION"—things people put in their mouths. The words you need to guess each have four letters, and start with a "C," an "F," and a "P." If you guessed chaw, foot and pipe, then this is the game for you.

The object of the game is to guess the word and type it correctly. You are scored on the number of words you have previously guessed correctly, and the column and row of the word. If you make five mistakes, or determine all the words correctly, your turn is over. There are 200 different categories and between 30 and 50 members in each category, so it is very difficult to remember all

of the answers in any one category.

It's evident much time and effort went into making this game. The contents of the sets of words are of various difficulty, with something for everyone. The categories included range from Old MacDonald's Farm to Opera, and from the Zodiac to Golf. There is only one screen in the game, but the colors are bright and the "typewriter" action is good. There is only a slight amount of animation, and few sounds (when you press the keys and when you identify the words correctly), but the game doesn't require more bells and whistles for enjoyable play.

While not billing itself as such, Buzzword is quite educational and is lots of fun to play.

You have numerous options available when you play Buzzword. You can play it by yourself, against another player, or with groups of people. Using the various options, some of this information will not be available—for example the first letter of the word and its length can be hidden or displayed. Finally, you can set a timer to make the game a real challenge.

While not billing itself as an educational game, Buzzword is quite educational. It is also lots of fun to play in groups and is as sophisticated as some trivia games. The package comes with cards that contain all of the categories and the answers. The 24-page manual explains the variations well, and gives a list of the various subjects. This game is like no other, and it's a well-designed word game for the whole family.

ST New Products

By GREGG PEARLMAN, ANTIC ASSISTANT EDITOR

TWO MORE FROM MICHTRON

Print any text file, from program listings to online user manuals to BBS data, with **Mi-Print** ($29.95). Mi-Print gives you command over paper size, margins, headers, page numbers, pitch and line numbers, and it remembers the control codes and automatically sets up the printer to use the selected modes. Mi-Print can also be used as a typewriter, so you don't need to use a word processor for small jobs like addressing envelopes or writing short letters. Mi-Print can also list every file on a disk, including those in subfolders.

Your Financial Future ($39.95) gives you more control over your money matters. You can find where your finances stand and what direction they're taking, and determine the long-term effects of inflation on your current balance and the potential income you might receive on interest-bearing investments.

MichTron, 576 South Telegraph, Pontiac, MI 48053. (313) 334-5700. PRESS.
CIRCLE 242 ON READER SERVICE CARD

ST-SHUFFLEBOARD

True 3-D perspective plus an overhead view makes **ST-Shuffleboard** a detailed, realistic simulation. The puck slides toward the back of the table so smoothly you'll think you're watching it on television. Everything is under your control, from puck speed to the skill level to the amount of sawdust on the table. ST-Shuffleboard supports all GEM features including moving windows, desk accessories and pull-down menus. Color monitor required.

$29.95. Shelbourne Software Systems Inc., 7221 Rising Sun Avenue, Suite 191, Philadelphia, PA 19111. (215) 726-5244. PRESS.
CIRCLE 227 ON READER SERVICE CARD

WORKSTATIONS

With **HeartBeat Computer Workstations**, each piece is individually wired with a built-in central cooling system, anti-static ground, surge suppressor/line conditioner, high/low voltage indicator and an LED main control panel to operate your complete system.

$2,495. HeartBeat Computer Workstations, 16872 Stagg Street, Van Nuys, CA 91406. (818) 908-8015. In California: (800) 331-1183. PRESS.
CIRCLE 230 ON READER SERVICE CARD

PHANTASIE II

In this adventure game, the beautiful, magical Isle of Ferronrah is beset by evil power emanating from an enchanted orb controlled by the Dark Lord Nikademus. Players gather a group of adventurers to sail to the mysterious island, use spells and weaons to invade difficult terrain, escape dungeons, destroy the demons and their orb, and relieve the land of its calamity—if they can.

$39.95. Strategic Simulations, Inc., 1046 N. Rengstorff Avenue, Mountain View, CA 94043. (415) 964-1353. PRESS.
CIRCLE 232 ON READER SERVICE CARD

FIT FOR A KING

Royal Software's **EZ Calc** ($69.95) is a fully mouse-controlled, GEM-based spreadsheet featuring 300 columns by 999 rows, a built-in sort routine, online help windows and 10 macros controlled by the function keys. But its most interesting feature is a 10-key calculator that can be pulled down any time and operated either with mouse or keyboard—and the results of a calculation can be transferred to any cell with the click of the mouse. EZ Calc even lets you attach a four-line personal note to any cell, which is then highlighted to remind you about the note.

Help Calc ($24.95) contains 11 preprogrammed templates, including check register, depreciation schedules, investment portfolio and loan amortization schedules for EZ Calc or VIP Professional.

Royal Software, 2160 West 11th Avenue, Eugene, OR 97402. (800) 452-8013, (503) 683-5361. PRESS.
CIRCLE 228 ON READER SERVICE CARD

*New ST product notices are compiled from information provided by the products' manufacturers. **Antic** assumes no responsibility for the accuracy of these notices or the performance of the product. Each mention is followed by a code word indicating that, at press time, **Antic** had seen a FINAL marketable version, near-final BETA, earlier ALPHA, incomplete DEMO, or PRESS release.*

TYPING SPECIAL ATARI CHARACTERS

Antic printed program listings leave a small space between each Atari Special Character for easier reading. Immediately below you will see the way **Antic** prints all the standard Atari letters and numbers, in upper and lower case, in normal and inverse video.

ABCDEFGHIJKLMNOPQRSTUVWXYZ
ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
abcdefghijklmnopqrstuvwxyz
0123456789 0123456789

The Atari Special Characters and the keys you must type in order to get them are shown in the two boxes below.

NORMAL VIDEO

FOR THIS	TYPE THIS	FOR THIS	TYPE THIS
	CTRL ,		CTRL S
	CTRL A		CTRL T
	CTRL B		CTRL U
	CTRL C		CTRL V
	CTRL D		CTRL W
	CTRL E		CTRL X
	CTRL F		CTRL Y
	CTRL G		CTRL Z
	CTRL H		ESC ESC
	CTRL I		ESC CTRL −
	CTRL J		ESC CTRL =
	CTRL K		ESC CTRL +
	CTRL L		ESC CTRL *
	CTRL M		CTRL .
	CTRL N		CTRL ;
	CTRL O		ESC CTRL =
	CTRL P		ESC SHIFT CLEAR
	CTRL Q		ESC DELETE
	CTRL R		ESC TAB

INVERSE VIDEO

FOR THIS	TYPE THIS	FOR THIS	TYPE THIS
	人 CTRL ,		CTRL X
	人 CTRL A		CTRL Y
	人 CTRL B		CTRL Z
	人 CTRL C		ESC SHIFT DELETE
	人 CTRL D		ESC SHIFT INSERT
	人 CTRL E		ESC CTRL TAB
	人 CTRL F		ESC SHIFT TAB
	人 CTRL G		人 CTRL .
	人 CTRL H		人 CTRL ;
	人 CTRL I		人 SHIFT =
	人 CTRL J		ESC CTRL 2
	人 CTRL K		ESC CTRL DELETE
	人 CTRL L		ESC CTRL INSERT
	人 CTRL M		
	人 CTRL N		
	人 CTRL O		
	人 CTRL P		
	人 CTRL Q		
	人 CTRL R		
	人 CTRL S		
	人 CTRL T		
	人 CTRL U		
	人 CTRL V		
	人 CTRL W		

Whenever the CONTROL key (CTRL on the 400/800) or SHIFT key is used, *hold it down* while you press the next key. Whenever the ESC key is pressed, *release* it before you type the next key.

Turn on inverse video by pressing the Reverse Video Mode Key. Turn it off by pressing it a second time. (On the 400/800, use the Atari Logo Key instead.)

Among the most common program typing mistakes are switching certain capital letters with their lower-case counterparts—you need to look especially carefully at P, X, O and 0 (zero).

Some of Atari Special Characters are not easy to tell apart from standard alpha-numeric characters. Usually the Special Characters will be boxed. Compare the two sets of characters below:

SPECIAL		STANDARD	
	CTRL F		/
	CTRL G		SHIFT | +
	CTRL N		SHIFT −
	CTRL R		−
	CTRL S		+

SOFTWARE LIBRARY

Antic type-in listing section includes every full-length program from this issue. Listings are easier to type and proofread, easy to remove and save in a binder if you wish.

DISK SUBSCRIBERS: Programs for 8-bit Atari computers can be used immediately. Just follow instructions in the accompanying magazine articles. ST Owners: See monthly disk's ST Help File for instructions on how to transfer programs to 3-1/2 inch disk.

DOS COMPATIBILITY: All 8-bit programs published by **Antic** are tested to work with Atari Disk Operating System (DOS) 2.0S and 2.5—*not* with the incompatible DOS 3.0. DOS 2.0S is available on each Antic Monthly Disk. Copy the DOS.SYS and DUP.SYS files.

HOW TO USE TYPO II (8-BIT)

TYPO II automatically proofreads **Antic**'s type-in BASIC listings for 8-bit Atari computers. It finds the exact line where you made a program typing mistake.

Type in TYPO II and SAVE a copy to disk or cassette. Now type GOTO 32000. When you see the instruction on the screen, type in a single program line **without the two-letter TYPO II code** at the left of the line number. Press the [RETURN] key.

Your line will reappear at the bottom of the screen with a two-letter TYPO II code on the left. If this code is not exactly the same as the line code printed in the magazine, you mistyped something in that line.

To call back any line previously typed, type an asterisk [*] followed (without in-between spaces) by the line number, then press [RETURN]. When the complete line appears at the top of the screen, press [RETURN] again. This is also the way you use TYPO II to proofread itself.

To LIST your program, press [BREAK] and type LIST. To return to TYPO II, type GOTO 32000.

To remove TYPO II from your program, type LIST "D:FILENAME",0,31999 [RETURN] (Cassette owners LIST "C:). Type NEW, then ENTER "D:FILENAME"[RETURN](Cassette—ENTER "C:). Your program is now in memory without TYPO II and you can SAVE or LIST it to disk or cassette.

Don't type the TYPO II Codes!

```
WB 32000 REM TYPO II BY ANDY BARTON
VM 32010 REM VER. 1.0 FOR ANTIC MAGAZINE
HS 32020 CLR :DIM LINE$(120):CLOSE #2:CLO
   SE #3
BN 32030 OPEN #2,4,0,"E":OPEN #3,5,0,"E"
YC 32040 ? "K":POSITION 11,1:? "TYPO II"
EM 32050 TRAP 32040:POSITION 2,3:? "Type
   in a program line"
HS 32060 POSITION 1,4:? " ":INPUT #2;LINE
   $:IF LINE$="" THEN POSITION 2,4:LIST B
   :GOTO 32060
XH 32070 IF LINE$(1,1)="*" THEN B=VAL(LIN
   E$(2,LEN(LINE$))):POSITION 2,4:LIST B:
   GOTO 32060
TH 32080 POSITION 2,10:? "CONT"
MF 32090 B=VAL(LINE$):POSITION 1,3:? " ";
NY 32100 POKE 842,13:STOP
CN 32110 POKE 842,12
ET 32120 ? "K":POSITION 11,1:? " TYPO II 
   ":POSITION 2,15:LIST B
CE 32130 C=0:ANS=C
QR 32140 POSITION 2,16:INPUT #3;LINE$:IF
   LINE$="" THEN ? "LINE ";B;" DELETED":G
   OTO 32050
VV 32150 FOR D=1 TO LEN(LINE$):C=C+1:ANS=
   ANS+(C*ASC(LINE$(D,D))):NEXT D
WJ 32160 CODE=INT(ANS/676)
JW 32170 CODE=ANS-(CODE*676)
EH 32180 HCODE=INT(CODE/26)
BH 32190 LCODE=CODE-(HCODE*26)+65
HB 32200 HCODE=HCODE+65
IE 32210 POSITION 0,16:? CHR$(HCODE);CHR$
   (LCODE)
VG 32220 POSITION 2,13:? "If CODE does no
   t match press  RETURN  and edit line a
   bove.":GOTO 32050
```

SynCalc template figures it for you

HOW MUCH ARE YOU WORTH?

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LISTING 1

```
B9 B5/((1-(1+B6/12)^-B7)/(B6/12))
B10 ((1+B6/2)^(1/6)-1)
B16 B12/((1-(1+B13/12)^-B14)/(B13/12))
B17 ((1+B13/2)^(1/6)-1)
B39 @SUM(B24:B37)
B40 B32+B33+B35+B36+B37
B49 B9*(1-(1+B6/12)^(-B7+B8))/(B6/12)
B50 B16*(1-(1+B13/12)^(-B14+B15))/(B13/12)
B52 @SUM(B45:B50)
C24 B24
C25 B25-500
C26 B26
C27 B27
C28 B28
C29 B29
C30 B30*(1+C4/2)
C31 B31-(940*6/12)
C32 (B32+1000)*(1+C4/2)
C33 (B33+1000)*(1+C4/2)
C34 (B34+1000)*(1+C4/2)
C35 (B35+1200)*(1+C4/2)
C36 (B36+1000)*(1+C4/2)
C37 B37*(1+0.06/2)
C39 @SUM(C24:C37)
C40 C32+C33+C35+C36+C37
C45 (B45-(80*6))*(1+0.19/2)
C46 (B46-(30*6))*(1+0.19/2)
C47 (B47-(30*6))*(1+0.19/2)
C48 B48-(71*6)
C49 B9*(1-(1+B6/12)^(-B7+B8+6))/(B6/12)
C50 B16*(1-(1+B13/12)^(-B14+B15+6))/(B13/12)
C52 @SUM(C45:C50)
D24 B24
D25 C25-500
D26 B26
D27 B27
D28 B28
D29 B29
D30 C30*(1+C4/2)
D31 C31-(940*6/12)
```

```
D32 (C32+1000)*(1+C4/2)
D33 (C33+1000)*(1+C4/2)
D34 (C34+1000)*(1+C4/2)
D35 (C35+1200)*(1+C4/2)
D36 (C36+1000)*(1+C4/2)
D37 B37*(1+0.06/2)
D39 @SUM(D24:D37)
D40 D32+D33+D35+D36+D37
D45 (C45-(80*6))*(1+0.19/2)
D46 (C46-(30*6))*(1+0.19/2)
D47 (C47-(30*6))*(1+0.19/2)
D48 C48-(71*6)
D49 B9*(1-(1+B6/12)^(-B7+B8+12))/(B6/12)
D50 B16*(1-(1+B13/12)^(-B14+B15+12))/(B13/12)
D52 @SUM(D45:D50)
E24 B24
E25 D25-500
E26 B26
E27 B27
E28 B28
E29 B29
E30 D30*(1+C4/2)
E31 0
E32 (D32+1000)*(1+C4/2)
E33 (D33+1000)*(1+C4/2)
E34 (D34+1000)*(1+C4/2)
E35 (D35+1200)*(1+C4/2)
E36 (D36+1000)*(1+C4/2)
E37 B37*(1+0.06/2)
E39 @SUM(E24:E37)
E40 E32+E33+E35+E36+E37
E45 (D45-(80*6))*(1+0.19/2)
E46 (D46-(30*6))*(1+0.19/2)
E47 (D47-(30*6))*(1+0.19/2)
E48 0
E49 B9*(1-(1+B6/12)^(-B7+B8+18))/(B6/12)
E50 B16*(1-(1+B13/12)^(-B14+B15+18))/(B13/12)
E52 @SUM(E45:E50)
F24 B24
F25 E25-500
F26 B26
F27 B27
F28 B28
F29 B29
F30 E30*(1+C4/2)
F31 0
F32 (E32+1000)*(1+C4/2)
F33 (E33+1000)*(1+C4/2)
F34 (E34+1000)*(1+C4/2)
F35 (E35+1200)*(1+C4/2)
F36 (E36+1000)*(1+C4/2)
F37 B37*(1+0.06/2)
F39 @SUM(F24:F37)
F40 F32+F33+F35+F36+F37
F45 (E45-(80*6))*(1+0.19/2)
F46 (E46-(30*6))*(1+0.19/2)
F47 (E47-(30*6))*(1+0.19/2)
F48 0
F49 B9*(1-(1+B6/12)^(-B7+B8+24))/(B6/12)
F50 B16*(1-(1+B13/12)^(-B14+B15+24))/(B13/12)
F52 @SUM(F45:F50)
I29 B39-B52
I30 C39-C52
I31 D39-D52
I32 E39-E52
I33 F39-F52
I34 B39
I35 C39
I36 D39
I37 E39
I38 F39
I39 B52
I40 C52
I41 D52
I42 E52
I43 F52
I44 B40
I45 C40
I46 D40
I47 E40
I48 F40
```

readable software 80-column text

EASY 80

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LISTING 1

Don't type the TYPO II Codes!

```
PM 10 REM EASY-80
UB 20 REM BY JD CASTEN
HA 30 REM (c) 1987, ANTIC PUBLISHING
BD 40 REM 80-COL. ROUTINES ARE IN 20000-2
   0099
MR 90 GOSUB 20000
LI 100 TRAP 140
AI 110 COLOR 1:FOR J=2 TO 78 STEP 4:PLOT
   J,112:DRAWTO 41,159
TX 111 DRAWTO 41,159:DRAWTO J,190:PLOT 2,
   J+110:DRAWTO 41,159:DRAWTO 78,J+110
RS 120 NEXT J:PLOT 0,112:DRAWTO 78,112:DR
   AWTO 78,191:RESTORE 470
RY 130 READ T80$,X80,Y80:GOSUB 20099:GOTO
    130
VK 140 X80=4:Y80=10:FOR J=0 TO 127:T80$=C
   HR$(J):GOSUB 20099:T80$=CHR$(J+128):X8
   0=X80+40:GOSUB 20099
VA 150 X80=X80-39:IF X80=36 THEN X80=4:Y8
   0=Y80+1
GN 160 NEXT J
TM 180 T80$="77aarrnniinngg♥♥--aayy♥♥nn
   oott♥♥wwoorrKK♥♥oonn♥♥ccoolloorr♥♥4466
   55":X80=6:Y80=0:POKE 88,PEEK(88)+80
IY 200 U=USR(ADR(E80$),ADR(T80$),LEN(T80$
   ),57344,X80,Y80):POKE 88,PEEK(88)-80
GS 210 X80=59:T80$="▌                    ▐"
   :FOR Y80=15 TO 22:GOSUB 20099:NEXT Y80
HB 220 PLOT 0,0:DRAWTO 319,0:DRAWTO 319,1
   91:DRAWTO 0,191:DRAWTO 0,0
SC 230 REM ACCEPT TEXT IN 80 COL.
WU 240 DIM I$(20):X=1:XPOS=44:YPOS=15
PP 250 T80$=" Type in some text: ":X80=25
   :Y80=15:GOSUB 20099
XI 260 CLOSE #1:OPEN #1,4,0,"K:"
GR 270 U=USR(ADR(E80$),ADR("█ "),2,CHBAS,
   XPOS+X,YPOS):GET #1,K
NV 280 IF K<>126 THEN 320:REM DELETE?
CT 290 IF K=126 AND X>1 THEN X=X-1:U=USR(
   ADR(E80$),ADR(" "),1,CHBAS,XPOS+X,YPOS
   ):IF X>1 THEN I$=I$(1,X-1)
HT 300 IF X=1 THEN I$="":U=USR(ADR(E80$),
   ADR(" "),1,CHBAS,XPOS,YPOS):IF X>1 THE
   N I$=I$(1,X-1)
OT 310 GOTO 270
```

continued on next page

```
JH 320 IF K=155 THEN U=USR(ADR(E80$),ADR(
   " "),1,CHBAS,XPOS+X,YPOS):GOTO 350
WC 330 IF X=11 THEN 270:REM MAX. LENGTH I
   S 11
UW 340 I$(X)=CHR$(K):U=USR(ADR(E80$),ADR(
   I$(X)),1,CHBAS,XPOS+X,YPOS):X=X+1:GOTO
    270:REM PRINT & UPDATE
CR 350 T80$=" What you typed in: ":X80=25
   :Y80=16:GOSUB 20099
IM 360 T80$=I$:X80=44:Y80=16:GOSUB 20099
WG 370 T80$="That was a demo of 80 column
    input.":X80=22:Y80=18:GOSUB 20099
IR 380 T80$="Here's a little 80 column mo
   tion:":X80=23:Y80=20:GOSUB 20099
UO 390 T80$="Press any key to exit...":X8
   0=28:Y80=22:GOSUB 20099
WK 400 POKE 764,255
FO 410 X=60:Y=20:YD=1:XD=1:OX=X:OY=Y
VZ 420 U=USR(ADR(E80$),ADR(" "),1,CHBAS,O
   X,OY):U=USR(ADR(E80$),ADR("*"),1,CHBAS
   ,X,Y):OX=X:OY=Y
WI 430 X=X+XD:IF (X=77) OR (X=60) THEN XD
   =-XD
UX 440 Y=Y+YD:IF (Y=22) OR (Y=15) THEN YD
   =-YD
DC 450 IF PEEK(764)=255 THEN 420
JW 460 POKE 764,255:END
DL 470 DATA █The Easy 80 Column driver█
   by J.D. Casten for Antic Magazine,9,2
VL 480 DATA ▯▯█▯▯ -=-=-=-=-=-=-=-=-=-=-=<
   ##>=-=-=-=-=-=-=-=-=-=-=- ▯▯█▯▯,10,3
OL 490 DATA Font editors (i.e INSTEDIT et
   c.) can edit this font from the file:C
   OLUMN80.SET.,1,5
TY 500 DATA Use lines 20000 - 20099 of th
   is program to create your own 80 colum
   n programs.,1,6
LD 510 DATA Here is the entire set in bot
   h normal and inverse:,15,8
QC 520 DATA █You may mix text█,1,17
XP 530 DATA █and graphics█,3,19
WA 540 DATA ▛▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▀▜,59,14
FM 550 DATA ▙▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▟,59,23
OU 590 REM 80-COL. DRIVER:
IH 20000 REM INIT. 80-COL. DRIVER
WW 20005 DIM E80$(270),T80$(120)
KQ 20010 S=1:RESTORE 21000:FOR Q=0 TO 5:R
   EAD T80$:FOR J=1 TO 89 STEP 2
TD 20011 M=(ASC(T80$(J))-65)*26+ASC(T80$(
   J+1))-65:E80$(S)=CHR$(M):S=S+1:NEXT J:
   NEXT Q
ME 20049 REM LOAD COLUMN80.SET
UW 20050 CHBAS=25600
YW 20054 CLOSE #4:OPEN #4,4,0,"D:COLUMN80
   .SET"
BK 20060 CHBH=INT(CHBAS/256)
VQ 20065 POKE 901,CHBH
JI 20070 CHBL=CHBAS-CHBH*256
DO 20080 POKE 900,CHBL:POKE 904,0
CD 20085 POKE 905,4:POKE 898,7
DG 20090 U=USR(ADR("h█eLV▯"))
UZ 20096 GRAPHICS 8+16:POKE 710,142:POKE
   709,0:GOTO 100
TS 20099 U=USR(ADR(E80$),ADR(T80$),LEN(T8
   0$),CHBAS,X80,Y80):RETURN
ZT 21000 DATA EAEAFDABEAFDAAEAEAFDACEAFDA
   EEAFDADEAEAFDAFEAEAFDAGGJDKFDHVGJDLFDH
   WGJAGJGARHQAGGJHVAYEBCMFD
QQ 21010 DATA HVGJHWEBABFDHWIAJBGJAFCWAYD
   XHVFDHVGJHWEBAAFDHWGJAFBPABFDAHGJACIAA
   BDSHQACGEAAGVAABPEYFDIEGV
XU 21020 DATA AABPEXFDHZGNAAAYAGHZBQAGHZB
   QAGHZBQAYDXAEFDIAGJHVFDHXGJHWFDHYGJAHI
   ACFGEAAGGAHGJIEJGAEGNJGFD
LX 21030 DATA IEGVHXBPAPFPHXGVHZCRIEBPJGA
   RHXFPHXHSGJHXAYEBBNFDHXGJHYEBAAFDHYHUA
   QIPGNABFDAHIWAAIAFXIWABIA
ZI 21040 DATA FTGEAAGGAHGJIEJGAEGNAPFDIEG
   VHXBPJGFPHXGVHZCRIEBPAPARHXFPHXHSGJHXA
   YEBBNFDHXGJHYEBAAFDHYHUAQ
VO 21050 DATA IPIWHVIAACIWHWGNAAFDAHIWAFI
   WAFGJAFHTDCFOHBGNAAFDAFGJHVAYEBAYFDHVG
   JHWEBABFDHWIAGIAAAAAAAAAA
```

LISTING 2

```
JO 10 REM EASYMAKER
UB 20 REM BY JD CASTEN
HA 30 REM (c) 1987, ANTIC PUBLISHING
CQ 40 REM (LINES 10-220 MAY BE USED WITH
   OTHER BASIC LOADERS IN THIS ISSUE.
IS 45 REM CHANGE LINE 70 AS NECESSARY.)
MG 50 DIM FN$(20),TEMP$(20),AR$(93)
HO 60 DPL=PEEK(10592):POKE 10592,255
TF 70 FN$="D:COLUMN80.SET":REM THIS IS TH
   E NAME OF THE DISK FILE TO BE CREATED
YS 80 GRAPHICS 0:? "      ANTIC'S GENERIC
   BASIC LOADER"
CD 90 ? ,"BY CHARLES JACKSON"
PW 100 POKE 10592,DPL:TRAP 170
PO 110 ? :? :? "Creating ";FN$:? "...plea
   se stand by."
LQ 120 RESTORE :READ LN:LM=LN:DIM A$(LN):
   C=1
BK 130 AR$="":READ AR$
XW 140 FOR X=1 TO LEN(AR$) STEP 3:POKE 75
   2,255
DG 150 LM=LM-1:POSITION 10,10:? "(Countdo
   wn...T-";INT(LM/10);")     "
UY 160 A$(C,C)=CHR$(VAL(AR$(X,X+2))):C=C+
   1:NEXT X:GOTO 130
MZ 170 IF PEEK(195)=5 THEN ? :? :? "▯TOO
   MANY DATA LINES!":? "CANNOT CREATE FIL
   E!":END
CZ 180 IF C<LN+1 THEN ? :? "▯TOO FEW DATA
    LINES!":? "CANNOT CREATE FILE!":END
AL 200 OPEN #1,8,0,FN$
PP 210 POKE 766,1:? #1;A$;:POKE 766,0
AF 220 CLOSE #1:GRAPHICS 0:? "█COMPLETED█
   "
HL 1000 DATA 1035
HZ 1010 DATA 0001702382382380680000001021
   0210211911910210210201701701701701701 7
   017017102102102238238000000
QG 1020 DATA 0001021021022382381021021020
   0000000023823810210210205105105105120 4
   2042042042042042040510 51
LE 1030 DATA 0510510170170510511191192552
   5500000000000005105105105113613620420 4
   2382382552550510510510 51000
SJ 1040 DATA 0000000002042042042040000000
   0000025525500000000000000000000000000
   0000000002552550000000000000
MN 1050 DATA 2042042042040000068170170068 2
   3800000000000000011911910210210200000 0
   00025525500000000000102102102
UK 1060 DATA 2552551021021020000000682382
   3806800000000000000000255255255255136
   1361361361361361361360000000
HU 1070 DATA 0002552551021021021021021022
   5525500000000000204204204204204204204
   1021021021191190000000000204
YP 1080 DATA 1362041362380681020000000682
   3806806806800000000000680680682380680 00
   000000068255068000000000000
BT 1090 DATA 0000342550340000000000000000
   0000000000000000000000000680680680680 00
   068000000170170000000000000
OT 1100 DATA 0000001702381702381700000000
   6810213606803420406800000017003406806 8
   1361700000682381362381362 38
TF 1110 DATA 0680000000680680000000000000
   0000010213613613613610200000020403403 4
   034034204000000170068170068
UD 1120 DATA 1700000000000000682380680000
   0000000000000000000000000681360000000 0
   2380000000000000000000000000
WI 1130 DATA 0000000680000000340340680681
   3613600000002381701701701702380000000 68
   204068068068238000000204034
GE 1140 DATA 0340681362380000002040342040
   3403420400000017017023803403403200000 0
   2381362040340342040000001 02
WI 1150 DATA 1362041701702040000002380340
   3406813613600000002381702381701702380 00
   000238170170238034238000000
DL 1160 DATA 0000000680000680000000000000
   0006800000681360000000340681360680340 00
   0000000002380002380000000000
ZH 1170 DATA 0001360680340681360000000000
   6817003406800000680000000681701701701 36
   1020000000238170170238170170
TI 1180 DATA 0000002041702041701702040000
   0010213613613613610200000020417017017 0
   170204000000238136204136136
ED 1190 DATA 2380000000238136238136136136 0
   0000010213613617017023800000001701702 38
   170170170000000238068068068
HS 1200 DATA 0682380000000003403403417017 00
   6800000017017020417017017000000001361 36
   136136136238000000170238238
RO 1210 DATA 1701701700000001702382382382
   3817000000000068170170170170068000000 204
   170204136136136000000068170
EC 1220 DATA 1701701701020000000204170204 1
```

```
   7017017000000010213606803403420400000O
   2380680680680680680000000170
IU 1230 DATA 1701701701702380000001701701
   701702380680000001701701702382381700000
   0001701700680681701700000000
PD 1240 DATA 1701702380680680680000002380
   340681361362380000002381361361361362380
   00000013613606806803403400O
SI 1250 DATA 0002380340340340342380000000
   6823817000000000000000000000000000000
   00025500006823823823806800O
TW 1260 DATA 0000000002040341021702380000
   001361362041701702040000000000102136136
   136102000000034034102170170
AE 1270 DATA 1020000000000681702381360680
   000000340682380680680680000000000102170
   170238034204000136136204170
```

```
TH 1280 DATA .170170000000000680002040680682
   380000000340000340340340342040001361360
   1702041701700000000204068068
JT 1290 DATA 0680682380000000001702382381
   701700000000000204170170170170000000000
   06817017017006800000000000204
VA 1300 DATA 1701702041361360000001021701
   701020340340000002041701361361360000000
   000102136068034204000000068
JM 1310 DATA 2380680680681020000000001701
   701701701020000000001701701702380680000
   000000170170238238170000000
ZG 1320 DATA 0001701700681701700000000001
   701701701020342040000002380340681362380
   000000682382380682380000000
MH 1330 DATA 1021021021021021021021020002
   382041700340340000000000341022382381020
   0340000001362042382382041360
MO 1340 DATA 0000000010551091632080010551
   09163208
```

lesson 2: moving characters

ATARI ANIMATION

Article on page 28

LISTING 1

Don't type the TYPO II Codes!

```
GY 1 REM HAUNTED HOUSE, PART 2
OQ 2 REM BY ROBIN ALAN SHERER
PN 3 REM (c) 1987, ANTIC PUBLISHING INC.
EP 100 REM CHAR2 ADDS 8*8 PIXEL PROTO
WF 110 DIM MM$(41):MM$="hh[illegible]0h[illegible]Nh[illegible]Qh[illegible]Ph[illegible]
   [illegible]P[illegible]h[illegible]IN[illegible]P[illegible]@[illegible]PW[illegible]0[illegible]QJ[illegible]Pi[illegible]"
BK 130 REM [illegible]MAINLINE
ER 140 DIM CHARSET$(24)
KT 150 CHARSET$="8\[illegible]DJe[illegible]81[illegible]DDD[illegible]8t[illegible]DS[illegible]
   "
MV 160 TM=PEEK(106)
KL 170 CB=TM-4:CA=CB*256:NCA=CA+24
MS 180 POKE 106,CB-4
SI 190 X=USR(ADR(MM$),224*256,CA,1023)
AZ 200 X=USR(ADR(MM$),ADR(CHARSET$),NCA,2
   4)
PK 2000 POKE 756,CB
QN 2010 C=5:R=22
AS 2020 POSITION C,R
MF 2030 ? #6;"#";:GOSUB 2090
AY 2040 POSITION C,R
MX 2050 ? #6;"$";:GOSUB 2090
BE 2060 POSITION C,R
NP 2070 ? #6;"%";:GOSUB 2090
OY 2080 GOTO 2020
GJ 2090 FOR I=1 TO 50
ES 2100 NEXT I
AF 2110 RETURN
```

LISTING 2

```
MZ 10 REM HAUNTED HOUSE, PART 2 (HELP)
EG 20 REM BY ROBIN ALAN SHERER
HA 30 REM (c) 1987, ANTIC PUBLISHING
HI 35 REM (CREATES LINES 110-150 FOR HOUS
   E02.LST)
CQ 40 REM (LINES 10-220 MAY BE USED WITH
   OTHER BASIC LOADERS IN THIS ISSUE.
IS 45 REM CHANGE LINE 70 AS NECESSARY.)
MG 50 DIM FN$(20),TEMP$(20),AR$(93)
HO 60 DPL=PEEK(10592):POKE 10592,255
FV 70 FN$="D1:LINES02.LST":REM THIS IS TH
   E NAME OF THE DISK FILE TO BE CREATED
YS 80 GRAPHICS 0:? "     ANTIC'S GENERIC
   BASIC LOADER"
CD 90 ? ,"BY CHARLES JACKSON"
PW 100 POKE 10592,DPL:TRAP 170
PO 110 ? :? :? "Creating ";FN$:? "...plea
   se stand by."
LQ 120 RESTORE :READ LN:LM=LN:DIM A$(LN):
   C=1
BK 130 AR$="":READ AR$
XW 140 FOR X=1 TO LEN(AR$) STEP 3:POKE 75
   2,255
DG 150 LM=LM-1:POSITION 10,10:? "(Countdo
   wn...T-";INT(LM/10);")    "
UY 160 A$(C,C)=CHR$(VAL(AR$(X,X+2))):C=C+
   1:NEXT X:GOTO 130
MZ 170 IF PEEK(195)=5 THEN ? :? :? "[illegible]TOO
   MANY DATA LINES!":? "CANNOT CREATE FIL
   E!":END
CZ 180 IF C<LN+1 THEN ? :? "[illegible]TOO FEW DATA
    LINES!":? "CANNOT CREATE FILE!":END
AL 200 OPEN #1,8,0,FN$
PP 210 POKE 766,1:? #1;A$;:POKE 766,0
AF 220 CLOSE #1:GRAPHICS 0:? "[illegible]COMPLETED[illegible]
   "
FK 1000 DATA 104
IT 1010 DATA 0490490480320680730770320770
   770360400520490410580770770360610341040
   1041332071041332061041332090
ZF 1020 DATA 1041332081041701602551382080
   021041681772061452081361922552082472300
   2072302092022242552082330960
XT 1030 DATA 0341550490530480320670720650
   820830690840360610340560922541240680740
   0641600561082541240680680680
MG 1040 DATA 1700561162541240681640040100
   34155
```

LISTING 3

```
HZ 1 REM HAUNTED HOUSE, PART 3
OQ 2 REM BY ROBIN ALAN SHERER
PN 3 REM (c) 1987, ANTIC PUBLISHING INC.
ND 98 REM CHAR3 ADDS MULTI CHAR PROTO
NA 99 GOTO 110
BH 100 FOR I=1 TO 50:NEXT I:RETURN
BP 130 REM THESE LINES DELETE CODE
EO 140 DIM CHARSET$(76):DLY=100
QW 150 REM
QY 160 REM
ET 170 CB=PEEK(740)-4:POKE 106,CB-12:CA=C
   B*256:GRAPHICS 0
XT 180 REM DELETES OLD 180
EN 200 CA=CA+(96*8):FOR SEC=0 TO 1:GOSUB
   2110+10*SEC:X=USR(ADR(MM$),ADR(CHARSET
   $),CA,75)
GF 210 CA=CA+76:NEXT SEC
JE 1040 POKE 752,1:REM REMOVE GR. CALL
LT 2000 REM CHAR3 ADDS MULTI CHARACTER PR
   OTO
```

continued on next page

```
XB 2010 X=5:Y=20
AJ 2020 POKE 756,CB+2
SJ 2030 POSITION X,Y:? #6;"ab":POSITION X
    ,Y+1:? #6;"cd":POSITION X,Y+2:? #6;"ef
    ":GOSUB DLY
QU 2040 POSITION X,Y:? #6;"gh":POSITION X
    ,Y+1:? #6;"ij":POSITION X,Y+2:? #6;"kl
    ":SCROLL=SCROLL+2:GOSUB DLY
PZ 2050 POSITION X,Y:? #6;"mn":POSITION X
    ,Y+1:? #6;"op":POSITION X,Y+2:? #6;"qr
    ":SCROLL=SCROLL+4:GOSUB DLY
PF 2060 GOTO 2030
IS 2070 REM
IV 2080 REM
IY 2090 REM
HZ 2100 REM
VV 2110 CHARSET$(1,76)="[illegible]
    [illegible]8<<[illegible]p<
    <[illegible]":RETURN
WD 2120 CHARSET$(1,76)="[illegible]>x
    p8[illegible]
    [illegible]x[illegible]":RETURN
```

LISTING 4

```
OB 10 REM HAUNTED HOUSE, PART 3 (HELP)
EG 20 REM BY ROBIN ALAN SHERER
HA 30 REM (c) 1987, ANTIC PUBLISHING
ZY 35 REM (CREATES LINES 2110-2120 FOR HO
    USE03.LST)
CQ 40 REM (LINES 10-220 MAY BE USED WITH
    OTHER BASIC LOADERS IN THIS ISSUE.
IS 45 REM CHANGE LINE 70 AS NECESSARY.)
MG 50 DIM FN$(20),TEMP$(20),AR$(93)
HO 60 DPL=PEEK(10592):POKE 10592,255
GN 70 FN$="D:LINES03.LST":REM THIS IS THE
     NAME OF THE DISK FILE TO BE CREATED
YS 80 GRAPHICS 0:? "      ANTIC'S GENERIC
    BASIC LOADER"
CD 90 ? ,"BY CHARLES JACKSON"
PW 100 POKE 10592,DPL:TRAP 170
PO 110 ? :? :? "Creating ";FN$:? "...plea
    se stand by."
LQ 120 RESTORE :READ LN:LM=LN:DIM A$(LN):
    C=1
BK 130 AR$="":READ AR$
XW 140 FOR X=1 TO LEN(AR$) STEP 3:POKE 75
    2,255
DG 150 LM=LM-1:POSITION 10,10:? "(Countdo
    wn...T-";INT(LM/10);")      "
UY 160 A$(C,C)=CHR$(VAL(AR$(X,X+2))):C=C+
    1:NEXT X:GOTO 130
MZ 170 IF PEEK(195)=5 THEN ? :? :? "[illegible]TOO
    MANY DATA LINES!":? "CANNOT CREATE FIL
    E!":END
CZ 180 IF C<LN+1 THEN ? :? "[illegible]TOO FEW DATA
     LINES!":? "CANNOT CREATE FILE!":END
AL 200 OPEN #1,8,0,FN$
PP 210 POKE 766,1:? #1;A$;:POKE 766,0
AF 220 CLOSE #1:GRAPHICS 0:? " COMPLETED 
    "
GH 1000 DATA 214
NL 1010 DATA 0500490490480320670720650820
    8306908403604004904405505404106103400O
    000000000000000000000000003
EX 1020 DATA 0050110110110050030002402322
    1224413223224000400901101901901701603l
    016200200136200200008248001
GA 1030 DATA 0030070140280560600601281921
    9222409611206006000701102302302301100 7
    008224208168232008208224016
JB 1040 DATA 0090170170170340580820690840
    8508207803215505004905004803206707206 5
    082083069084036040049044055
LG 1050 DATA 0540410610340160160310032082
    0020023222320082481920030030150621201 12
    056024192192192192192192240
ZS 1060 DATA 2400070110230230230110070082
    2420816823200820822240160090090170160 16
    016031003200200232248120008
EK 1070 DATA 2481920030070070070150150150
    1522422241921281281921920000340580820 69
    084085082078032155
```

game of the month

RED, WHITE AND BLUE

Article on page 31

LISTING 1

Don't type the TYPO II Codes!

```
YI 10 REM RED, WHITE AND BLUE
DU 20 REM BY HEIDI BRUMBAUGH
HA 30 REM (c) 1987, ANTIC PUBLISHING
SW 40 BRK=(PEEK(53279)<>5)
LX 100 GOSUB 11000:REM INITIALIZATION
PJ 110 GOSUB 7000:REM GET SKILL LEVEL
WS 120 GOSUB 10000:REM MAKE RANDOM BOARD
UO 130 GOSUB 6000:REM DRAW BOARD
JO 140 GOTO 1000
LO 500 LSQR1=INT(LSQR/2):FOR TY=Y-LSQR1 T
    O Y+LSQR1
AA 510 PLOT (X-LSQR1),TY:DRAWTO (X+LSQR1)
    ,TY:NEXT TY
ZL 550 RETURN
FR 1000 POKE 764,255
ZF 1010 IF PEEK(764)=ESC OR (STICK(0)=14
    AND STRIG(0)=0) THEN 1200
CW 1015 GOSUB 1830
GW 1020 IF STRIG(0)=0 THEN GOSUB 5000:GOT
    O 1080:REM FLIP BOARD
JK 1025 STK0=PEEK(632)
AK 1030 IF STK0=7 THEN GOSUB 2000:GOTO 10
    80:REM RIGHT
JL 1040 IF STK0=14 THEN GOSUB 2100:GOTO 1
    080:REM UP
FV 1050 IF STK0=11 THEN GOSUB 2200:GOTO 1
    080:REM LEFT
GS 1060 IF STK0=13 THEN GOSUB 2300:GOTO 1
    080:REM DOWN
JG 1065 IF STK0=5 THEN IF STRIG(0)=0 THEN
     1200
HF 1070 GOTO 1010:REM REPEAT TIL KEY PRES
    SED
EY 1080 IF (NSQRS+1)*(NSQRS+1)<>TGOTTEN T
    HEN 1000:REM CHECK FOR WIN
JW 1100 GRAPHICS 18
PI 1110 POSITION 1,0:? #6;"!!!!!!!!!!!!!!
    !!!"
AI 1120 POSITION 1,2:? #6;"!!!  you win
    !!!"
SE 1130 POSITION 1,4:? #6;"!!!!!!!!!!!!!!
    !!!"
LN 1140 GOSUB 1810:POSITION 1,6:? #6;"CAR
    E"
EZ 1150 GOSUB 1810:POSITION 6,7:? #6;"FOR
    "
LL 1160 GOSUB 1810:POSITION 10,8:? #6;"A"
GK 1170 GOSUB 1810:POSITION 12,9:? #6;"CI
    GAR?":GOSUB 1810
US 1180 FOR I=1 TO 500:NEXT I:GOTO 110
AP 1200 IF STRIG(0)=0 THEN 1200
IQ 1205 GRAPHICS 18:POKE 708,RED:POKE 709
    ,WHITE:POKE 710,BLUE:POSITION 0,0:? #6
    ;"*[illegible]*[illegible]*[illegible]*[illegible]*[illegible]*[illegible]*[illegible]"
SA 1207 POKE 711,YELLOW:POKE 712,10:RESTO
    RE 12000
CT 1210 FOR R=1 TO 8:READ CJ:POSITION 0,R
    :? #6;CHR$(CJ):POSITION 19,R:? #6;CHR$
    (CJ):NEXT R
XP 1220 POSITION 4,2:? #6;"really quit"
```

```
XI 1230 POSITION 1,4:? #6;"RED white & BLUE?"
YZ 1240 POSITION 6,7:? #6;"yes":POSITION 11,7:? #6;"NO"
LZ 1250 POSITION 0,9:? #6;"[illegible]"
GH 1260 REM HIGHLIGHT NO
PX 1280 REM CHECK TRIGGER
WA 1290 IF STRIG(0)=0 THEN GOSUB 6000:GOTO 1000:REM NO
CU 1295 POSITION 6,7:? #6;"yes";
FQ 1297 POSITION 11,7:? #6;"No";:GOSUB 1820:POSITION 11,7:? #6;"nO";:GOSUB 1820:POSITION 11,7:? #6;"NO";
DW 1298 GOSUB 1820
BX 1300 IF STICK(0)<>11 THEN 1290
YK 1310 REM HIGHLIGHT YES
SR 1320 POSITION 11,7:? #6;"no";
DN 1325 POSITION 6,7:? #6;"YeS";:GOSUB 1820:POSITION 6,7:? #6;"YEs";:GOSUB 1820:POSITION 6,7:? #6;"yES";
CV 1326 GOSUB 1820
AI 1330 IF STRIG(0)=0 THEN 110
SP 1340 IF STICK(0)<>7 THEN 1320
SU 1350 GOTO 1290
CT 1400 IF STRIG(0)=0 THEN 1400
NP 1410 GOTO 110
OW 1800 SOUND 0,45,10,8:FOR D=1 TO 25:NEXT D:SOUND 0,0,0,0:RETURN :REM SOUND ROUTINE
OJ 1810 FOR I=1 TO 200:NEXT I:RETURN :REM DELAY ROUTINE
SK 1820 FOR D=1 TO 10:NEXT D:RETURN
VY 1830 POKE 77,0:IF BRK THEN POKE 16,112:POKE 53774,112:RETURN
BB 1840 RETURN
ME 2000 IF XGUY<NSQRS THEN XTEMP=XTEMP+1:GOTO 3000
GP 2010 GOSUB 1800:RETURN
DN 2020 GRAPHICS 0:END
SM 2100 IF YGUY>0 THEN YTEMP=YTEMP-1:GOTO 3000
GR 2110 GOSUB 1800:RETURN
QJ 2200 IF XGUY>0 THEN XTEMP=XTEMP-1:GOTO 3000
GT 2210 GOSUB 1800:RETURN
OX 2300 IF YGUY<NSQRS THEN YTEMP=YTEMP+1:GOTO 3000
GV 2310 GOSUB 1800:RETURN
WS 3000 POKE 77,0:IF INT(STAT(XTEMP,YTEMP)/10) THEN 3180
TY 3005 REM NOT HIDDEN
YA 3100 IF STAT(XTEMP,YTEMP) THEN 3160
QP 3110 REM NOT GOTTEN
UH 3120 COLOR CGOT:PLOT XSTART+(LSQR*XGUY)+INT(LSQR/2),YSTART+(LSQR*YGUY)+INT(LSQR/2)
GP 3130 X=XSTART+(LSQR*XTEMP)+INT(LSQR/2):Y=YSTART+(LSQR*YTEMP)+INT(LSQR/2):GOSUB 500
AT 3140 COLOR CGUY:XGUY=XTEMP:YGUY=YTEMP:PLOT X,Y:STAT(XGUY,YGUY)=1:TGOTTEN=TGOTTEN+1:RETURN
PV 3150 REM ALREADY GOTTEN
XH 3160 GOSUB 1800:XTEMP=XGUY:YTEMP=YGUY:RETURN
SA 3170 REM HIDDEN
TQ 3180 STAT(XTEMP,YTEMP)=STAT(XTEMP,YTEMP)-10:TFOUND=TFOUND+1:TGOTTEN=TGOTTEN+1
YJ 3185 IF STAT(XTEMP,YTEMP) THEN 3240
RN 3190 REM NOT GOTTEN
LV 3200 COLOR CNOTGOT:X=XSTART+(LSQR*XTEMP)+INT(LSQR/2):Y=YSTART+(LSQR*YTEMP)+INT(LSQR/2):GOSUB 500
FG 3205 D=SQR(2^4.4)
UG 3210 COLOR CGOT:PLOT XSTART+(LSQR*XGUY)+INT(LSQR/2),YSTART+(LSQR*YGUY)+INT(LSQR/2)
EG 3220 COLOR CGOT:GOSUB 500:COLOR CGUY:XGUY=XTEMP:YGUY=YTEMP:PLOT X,Y:STAT(XGUY,YGUY)=1:RETURN
SE 3230 REM GOTTEN, REVEAL SQUARE
TD 3240 COLOR CGOT:X=XSTART+(LSQR*XTEMP)+INT(LSQR/2):Y=YSTART+(LSQR*YTEMP)+INT(LSQR/2):GOSUB 500
XG 3250 GOSUB 1800:XTEMP=XGUY:YTEMP=YGUY:RETURN
IE 5000 GRAPHICS MODE:POKE 712,BLACK:POKE 708,RED:POKE 709,WHITE:REM FLIP
HD 5010 FOR Y=0 TO NSQRS
GW 5020 FOR X=0 TO NSQRS
BH 5030 IF INT(STAT(X,Y)/10) THEN COLOR CHIDE:GOTO 5070
OW 5040 IF X=XGUY AND Y=YGUY THEN COLOR CGOT:GOTO 5070
JN 5050 STAT(X,Y)=ABS(STAT(X,Y)-1)
WP 5060 IF STAT(X,Y) THEN COLOR CGOT:GOTO 5070
FG 5065 COLOR CNOTGOT
GD 5070 FOR TY=YSTART+(Y*LSQR) TO YSTART+(Y*LSQR)+LSQR-1
DP 5080 TX1=XSTART+X*LSQR:TX2=TX1+LSQR-1
FN 5090 PLOT TX1,TY:DRAWTO TX2,TY:NEXT TY:NEXT X:NEXT Y
AS 5140 COLOR CGUY:PLOT XSTART+(LSQR*XGUY)+INT(LSQR/2),YSTART+(LSQR*YGUY)+INT(LSQR/2)
UI 5150 TGOTTEN=TFOUND-TGOTTEN+1:RETURN
ZJ 6000 GRAPHICS MODE:POKE 712,BLACK:POKE 708,RED:POKE 709,WHITE
RN 6010 FOR YTEMP=0 TO NSQRS:FOR XTEMP=0 TO NSQRS
NW 6020 IF INT(STAT(XTEMP,YTEMP)/10) THEN COLOR CHIDE:GOTO 6050
YF 6030 IF STAT(XTEMP,YTEMP) THEN COLOR CGOT:GOTO 6050
EH 6040 COLOR CNOTGOT
FL 6050 X=XSTART+(XTEMP*LSQR)+INT(LSQR/2):Y=YSTART+(YTEMP*LSQR)+INT(LSQR/2):GOSUB 500
QS 6060 NEXT XTEMP
RG 6070 NEXT YTEMP
BD 6080 COLOR CGUY:PLOT XSTART+(LSQR*XGUY)+INT(LSQR/2),YSTART+(LSQR*YGUY)+INT(LSQR/2)
ZD 6090 XTEMP=XGUY:YTEMP=YGUY:RETURN
ZK 7000 GRAPHICS 18:GOSUB 1830
IM 7010 PRINT #6;"skill level:":POSITION 13,0:? #6;NSQRS+1
JQ 7020 POSITION 3,3:? #6;"USE JOYSTICK TO":POSITION 1,5:? #6;"CHANGE SKILL LEVEL"
WK 7030 POSITION 9,7:? #6;"[illegible]":POSITION 2,9
GQ 7040 ? #6;"PRESS TRIGGER TO":POSITION 8,11:? #6;"PLAY"
ME 7050 REM JOYSTICK INPUT
YU 7060 IF STRIG(0)=0 THEN RETURN
MU 7070 J=STICK(0):IF J<13 OR J>14 THEN 7060:REM CHECK RANGE
RB 7075 ON 15-J GOTO 7080,7090
TJ 7080 IF NSQRS>MAXSQRS-1 THEN GOSUB 1800:GOTO 7060
HH 7085 NSQRS=NSQRS+1:GOTO 7110
XG 7090 IF NSQRS<2 THEN GOSUB 1800:GOTO 7060
SY 7095 NSQRS=NSQRS-1
XP 7110 POSITION 13,0:? #6;"  ":POSITION 13,0:? #6;NSQRS+1:FOR I=1 TO 100:NEXT I
SQ 7120 GOTO 7060
HH 10000 XSTART=INT((WIDSCR/2)-(((NSQRS+1)/2)*LSQR))
FM 10005 YSTART=INT((LENSCR/2)-(((NSQRS+1)/2)*LSQR))
HE 10010 FOR X=0 TO NSQRS
IO 10015 FOR Y=0 TO NSQRS
ZA 10020 STAT(X,Y)=INT(RND(0)+0.5)+10
NF 10030 NEXT Y
MX 10040 NEXT X
OB 10050 XGUY=INT(RND(0)*NSQRS+1):YGUY=INT(RND(0)*NSQRS+1):STAT(XGUY,YGUY)=1:XTEMP=XGUY:YTEMP=YGUY
JP 10060 TGOTTEN=1:TFOUND=1
ED 10080 RETURN
YF 11000 MODE=5+16:WIDSCR=80:LENSCR=48:LSQR=5:MAXSQRS=INT((LENSCR/LSQR)-1):NSQRS=4
OL 11010 CGUY=0:CGOT=3:CNOTGOT=1:CHIDE=2
KK 11020 DIM STAT(MAXSQRS,MAXSQRS),CLS$(1)
OC 11030 CLS$=CHR$(125):ESC=28:RED=50:WHITE=14:BLUE=114:YELLOW=30:BLACK=0
DP 11040 RETURN
ZY 12000 DATA 170,10,42,170,10,42,170,10
```

a Stan Ockers classic returns

CHICKEN XL

Article on page 35

LISTING 1

Don't type the TYPO II Codes!

```
GL 1 REM CHICKEN
ZK 2 REM BY STAN OCKERS (12/81)
YC 3 REM ANTIC PUBLISHING, 1987
PE 10 OPEN #1,4,0,"K:":DIM L$(20),S$(20),C$(20)
KS 15 ? "INITIALIZING ..."
JW 20 REM PAGE 6 ROUTINES AND DATA
EE 40 FOR I=1536 TO 1587:READ A:POKE I,A:NEXT I
NU 41 REM VERTICAL BLANK ROUTINE
LH 42 DIM VB$(210):FOR I=1 TO 210:READ A:VB$(I)=CHR$(A):NEXT I
CD 43 REM LOAD PLAYER ROUTINE
QL 45 DIM LD$(73):FOR I=1 TO 73:READ A:LD$(I)=CHR$(A):NEXT I
SC 47 REM INSERT ADDRESS OF ROUTINE IN PAGE 6
MR 48 A=ADR(VB$):B=INT(A/256):POKE 1540,B:POKE 1538,A-256*B
QG 50 DATA 104,160,52,162,6,169,7,76,92,228,104,160,98,162,228,169,7,76,92,228
KY 52 DATA 120,120,120,120,30,57,81,105,15,15,15,15,0,0,0,0,52,53,54,55,2,2,3,4,12,15,15,15,15,11,11,11
BK 54 REM
BM 55 REM
YZ 56 DATA 72,138,72,152,72,162,0,189,120,2,29,44,6,160,15,24,176,32,201,15,240,28,201,14,208,2,160,13,201,13
RB 57 DATA 208,2,160,14,201,11,208,2,160,7,201,7,208,2,160,11,192,15,240,6,61,48,6,157,28,6,152,61,44,6,157,44,6
JO 58 DATA 232,224,4,144,195
KK 60 DATA 162,0,189,32,6,133,203,189,36,6,133,204,189,40,6,133,209,198,209,16,7,232,224,4
YS 65 DATA 144,232,176,91,189,28,6,133,207
XV 70 DATA 70,207,176,26,188,24,6,192,1,240,19,208,1,200,177
AB 75 DATA 203,240,6,136,145,203,200,208,245,136,145,203,222,24,6,70,207,176,29,188,24,6,200,192,254,176,21
NH 80 DATA 177,203,208,247,136,177,203,240,6,200,145,203,136,208,245,200,145,203,254,24,6,70,207,176,3,222,20
KM 85 DATA 6,70,207,176,3,254,20,6,189,20,6,157,0,208
ZB 90 DATA 24,144,154,162,4,189,11,208,240,5,169,0,157,39,6,202,208,243,104,168,104,170,104,76,98,228
JO 100 DATA 234,234,234,104,104,104,170,189,32,6,133,186,189,36,6,133,187,104,133,213,104,133,212
NK 110 DATA 189,24,6,133,195,169,0,168,192,255,176,35,196,195,240,5,145,186,200,208,243,162,0,161,212,240,11
GQ 120 DATA 145,186,230,212,200,192,255,176,11,208,241,169,0,145,186,200,192,255,144,249,96,234,234
TE 150 REM CAR COLOR DATA
IL 160 FOR I=1 TO 20:READ A:C$(I)=CHR$(A):NEX1 I
GK 170 DATA 24,60,218,68,90,186,70,150,54,232,74,168,88,154,21,252,200,76,228,28
FQ 190 REM DEFINE P/M AREA - SINGLE LINE RESOLUTION
BP 200 A=PEEK(106)-16:POKE 54279,A:PM=256*A
FV 205 REM PLAYER MISSILE POINTERS
CM 210 FOR I=4 TO 7:POKE 1568+I,A+I:NEXT I
OU 212 FOR I=1568 TO 1571:POKE I,0:NEXT I
ZG 218 REM DATA FOR PLAYER IMAGES
TC 220 FOR I=PM TO PM+121:READ A:POKE I,A:NEXT I
RA 230 DATA 16,56,16,56,40,16,16,16,146,254,254,124,56,56,40,40,40,40,40,108,0
ZE 232 DATA 126,195,219,219,91,219,219,219,219,91,219,219,195,126,0
OW 234 DATA 126,195,219,219,218,219,219,219,219,218,219,219,195,126,0
QX 236 DATA 33,34,150,84,57,30,60,123,159,30,52,86,151,36,194,193,0
TH 238 DATA 16,56,16,56,40,16,16,56,124,254,186,56,56,40,40,40,44,32,96,0
WC 240 DATA 16,56,16,56,40,16,16,146,214,124,56,56,40,40,40,104,8,12,0
WG 242 DATA 126,255,173,173,239,199,199,199,199,239,173,173,255,126,0
VB 270 REM INIT. HORIZ. & VERT. POS.
SB 280 RESTORE 282:FOR I=1556 TO 1563:READ A:POKE I,A:NEXT I
FK 282 DATA 120,120,120,120,30,57,81,105
YI 288 REM INIT COLORS
FC 290 DIF=3:BONUS=300:POKE 704,40:CP=0:FOR I=1 TO 3:POKE 704+I,ASC(C$(CP+I)):NEXT I:CP=3:BPOS=5
VI 295 REM DRAW ROADS - SET PRIORITY
PA 300 GRAPHICS 17:FOR I=1 TO 20:L$(I)="_":NEXT I
WD 305 FOR I=2 TO 20 STEP 2:S$(I)="-":S$(I-1)=" ":NEXT I
OI 310 POSITION 0,2:? #6;L$:POSITION 0,11:? #6;L$:POSITION 0,13:? #6;L$:POSITION 0,22:? #6;L$
NB 312 POSITION 0,5:? #6;S$:POSITION 0,8:? #6;S$:POSITION 0,16:? #6;S$:POSITION 0,19:? #6;S$:POKE 710,90
QG 340 REM INIT. AND PRINT INFO. - RESET TIMER
HM 350 SCORE=50:POSITION 0,1:? #6;"score          time ":POSITION 0,23:? #6;"dif            high ";
VA 360 POSITION 0,0:? #6;SCORE:POSITION 15,22:? #6;HIGH:POKE 77,0:POKE 19,0:POKE 20,0
GO 365 REM INIT. P/M GR. - FLAGS
JE 370 POKE 559,62:POKE 53277,3:I1=68:I2=88:FL=I1
EW 375 REM LOAD PLAYERS - SET COLORS - PLAYER SIZES
EG 380 LD=ADR(LD$):A=USR(LD,0,PM):A=USR(LD,1,PM+21):A=USR(LD,2,PM+21):A=USR(LD,3,PM+21)
MP 385 A=USR(1536):REM INSERT VBI ROUTINE
ZP 390 POKE 53257,1:POKE 53258,1:POKE 53259,1:POKE 623,1
CD 393 REM INIT. SPEEDS
CT 395 POKE 1576,2:FOR I=1577 TO 1579:POKE I,RND(0)*DIF+1:NEXT I
NX 398 POSITION 1,22:? #6;DIF
XI 400 REM IF CARS OFF SCREEN, CHANGE LANES
EQ 410 IF PEEK(1557)<15 AND PEEK(1561)=57 THEN POKE 1561,193:A=USR(LD,1,PM+36):POKE 1585,7:GOSUB 1000:POKE 705,C
TF 420 IF PEEK(1557)>240 AND PEEK(1561)=193 THEN POKE 1561,57:A=USR(LD,1,PM+21):POKE 1585,11:GOSUB 1000:POKE 705,C
UY 430 IF PEEK(1558)<15 AND PEEK(1562)=81 THEN POKE 1562,169:A=USR(LD,2,PM+36):POKE 1586,7:GOSUB 1000:POKE 706,C
FN 440 IF PEEK(1558)>240 AND PEEK(1562)=169 THEN POKE 1562,81:A=USR(LD,2,PM+21):POKE 1586,11:GOSUB 1000:POKE 706,C
TH 450 IF PEEK(1559)<15 AND PEEK(1563)=105 THEN POKE 1563,145:A=USR(LD,3,PM+36):POKE 1587,7:GOSUB 1000:POKE 707,C
```

```
BN 460 IF PEEK(1559)>240 AND PEEK(1563)=1
   45 THEN POKE 1563,105:A=USR(LD,3,PM+21
   ):POKE 1587,11:GOSUB 1000:POKE 707,C
HV 465 REM PRINT TIME - CK. FOR TIME UP
IT 470 TIME=30-PEEK(19):POSITION 16,0:? #
   6;TIME;" ":IF TIME<=0 THEN 910
YO 472 REM RESET SOUND - HORN ROUTINE
WL 473 SOUND 0,0,0,0
QY 475 IF RND(0)>0.5 THEN SOUND 1,0,0,0
OF 480 IF RND(0)<0.05 THEN SOUND 1,7,12,1
   0
BI 482 REM CHICKEN STOMP
HA 485 P=PEEK(1564):IF P>15 OR P<13 THEN
   500
JO 490 IF P=15 THEN A=USR(LD,0,PM):GOTO 5
   00
NU 492 IF FL=I1 THEN FL=I2:SOUND 0,16,6,8
   :GOTO 496
PW 494 IF FL=I2 THEN FL=I1:SOUND 0,22,6,8

LY 495 REM CHECK FOR REACHING BOTTOM
ZE 496 A=USR(LD,0,PM+FL)
GA 500 IF PEEK(1560)>230 THEN 810
CJ 505 REM CHECK FOR COLLISION
TG 510 IF PEEK(53260)=0 THEN 410
IU 515 REM SPLAT
IO 520 A=USR(LD,0,PM+51):FOR J=1 TO 3:SOU
   ND 0,RND(0)*255,8,8:SOUND 1,RND(0)*255
   ,8,8
KY 525 POKE 704,PEEK(704)+8:FOR I=1 TO 30
   :NEXT I:NEXT J:SOUND 0,0,0,0:SOUND 1,0
   ,0,0:POKE 704,40
BP 527 REM DECREASE SCORE - CHECK FOR 0
XG 530 SCORE=SCORE-20:POSITION 0,0:? #6;S
   CORE;"   ":IF SCORE<=0 THEN 702
GI 533 REM MOVE UP - RELOAD BIRD - RESET
   COLL.
YE 535 POKE 1560,PEEK(1560)-24:A=USR(LD,0
   ,PM):IF DIF>1 THEN DIF=DIF-1
BQ 590 POKE 53278,0:GOTO 395
SG 700 REM SCORE = ZERO
FF 702 POSITION 3,2:? #6;"CHICKEN'S DEAD"

MQ 704 REM AMBULANCE
FA 705 C=1
DM 706 IF PEEK(1576+C)=0 THEN C=C+1:GOTO
    706
NP 707 IF C>3 THEN C=1
BF 713 POKE 1576+C,1:POKE 1560+C,PEEK(156
   0):POKE 1556+C,220:A=USR(LD,C,PM+107)
XT 715 FOR J=1 TO 6:FOR P=60 TO 40 STEP -
   2:SOUND 0,P,10,8:FOR I=1 TO 6:NEXT I
RL 716 NEXT P:FOR P=40 TO 60 STEP 2:SOUND
    0,P,10,8:FOR I=1 TO 6:NEXT I:NEXT P:N
   EXT J:SOUND 0,0,0,0
LS 718 REM NEW HIGH SCORE?
ST 720 A=USR(1546):IF SCORE>HIGH THEN HIG
   H=SCORE:POSITION 15,22:? #6;HIGH
HJ 730 POSITION 2,6:? #6;"press FIRE butt
   on":POSITION 4,7:? #6;"to play again"
LC 732 FOR I=53248 TO 53251:POKE I,0:NEXT
    I:SOUND 0,0,0,0:SOUND 1,0,0,0
WX 735 REM WAIT FOR BUTTON
CA 740 IF STRIG(0)=1 THEN 740
OP 745 REM P/M GRAPHICS OFF
TP 750 POKE 53278,0:POKE 53277,0:A=USR(15
   46):GOTO 280
MT 800 REM BACK TO TOP - STOP MOVEMENT OF
    BIRD
BK 810 POKE 1560,30:A=USR(LD,0,PM):POKE 1
   576,0
YX 815 REM SIGNAL AND INCREMENT SCORE
YR 820 FOR I=1 TO 5:FOR J=10 TO 5 STEP -1
   :SOUND 0,J,14,8:SOUND 1,J,2,8:NEXT J:S
   OUND 0,0,0,0:SOUND 1,0,0,0
UX 825 A=USR(LD,0,PM+68):FOR J=1 TO RND(0
   )*30:NEXT J:A=USR(LD,0,PM+88)
XP 830 SCORE=SCORE+DIF*2:POSITION 0,0:? #
   6;SCORE;"   ":NEXT I
RJ 840 IF DIF<9 THEN DIF=DIF+1
FG 841 REM CK FOR BONUS
XG 842 IF SCORE<BONUS THEN 850
YC 844 SOUND 0,25,10,10:BONUS=BONUS+300:P
   =PEEK(19):IF P<11 THEN POKE 19,0:GOTO
   848
CT 846 POKE 19,P-10
WG 848 POSITION BPOS,13:? #6;"□":BPOS=BPO
   S+1
QM 850 GOTO 390
OZ 900 REM TIME'S UP ROUTINE
PJ 910 POSITION 5,2:? #6;"TIME'S UP"
OW 920 GOTO 720
TY 990 REM CHANGE CAR COLOR
QF 1000 CP=CP+1:IF CP=20 THEN CP=1
NU 1010 C=ASC(C$(CP)):RETURN
```

transmit your own subliminal messages

GHOST WRITER

Article on page 36

LISTING 1

Don't type the TYPO II Codes!

```
WP 10 REM "GHOST WRITERS IN DIS-GUISE"
ER 20 REM BY THOMAS MOORE
PT 30 REM (c)1987, ANTIC PUBLISHING
JX 1000 GRAPHICS 1+16:CLR
WQ 1040 DIM MSS$(20),TOM$(20),MST$(20),MO
   T$(20):BRK=(PEEK(53279)<>5)
EH 1060 GOSUB 1860
QM 1080 TRAP 1820
TG 1100 A=1
PQ 1120 GOSUB 1200:GRAPHICS A+16:POKE 756
   ,CHSET/256
MH 1140 POKE 709,228:POKE 710,10:POKE 708
   ,130
MF 1160 DL=PEEK(560)+256*PEEK(561)+6
TW 1180 FOR I=0 TO 6:POKE DL+I,133+A:NEXT
    I:GOTO 1240
FJ 1200 POKE 82,10:POKE 83,29:?
XM 1220 TOM$="CALL":MOT$="none":RETURN
HH 1240 FOR I=0 TO 42:READ B:POKE 1553+I,
   B:NEXT I
TR 1260 DATA 72,138,72,152,72,162,0,141,1
   0,212
AD 1280 DATA 189,1,6,188,9,6,141,24,208,1
   40,25,208
HZ 1300 DATA 232,173,0,6,201,1,144,3,141,
   10,212
IX 1320 DATA 224,6,144,226,104,168,104,17
   0,104,64
RE 1340 FOR I=0 TO 73:READ C:POKE 1599+I,
   C:NEXT I:POKE 1596,0
WO 1360 DATA 72,138,72,173,60,6,201,4,144
   ,55,162,7
QU 1380 DATA 173,8,6,141,61,6,173,9,6,141
   ,62,6
IM 1400 DATA 202,189,1,6,157,2,6
EM 1420 DATA 224,0,208,245,173,61,6
RS 1440 DATA 141,1,6,162,0,189,10,6,157,9
   ,6,232,224,7,208,245,173,62,6,141,16,6
   ,169,0
SM 1460 DATA 141,60,6,238,60,6,104,170,10
   4,76,98,228
BP 1480 FOR I=0 TO 7:POKE 1537+I,(8+I)*16
   +I*2:NEXT I
RB 1500 FOR I=0 TO 7:POKE 1545+I,(1+I)*16
   +I*2:NEXT I
DL 1520 POKE 1536,A
HJ 1560 POKE 512,17:POKE 513,6
NY 1580 POKE 548,63:POKE 549,6:POKE 54286
   ,192
BZ 1585 GOSUB 10000
YQ 1590 POSITION 0,9:? #6;"]&&&&&&&&&&&&&&
   &&&&&."
```

continued on next page

```
PG 1600 POSITION 0,1:? #6;"[%%%%%%%%%%%%%
       %%%%%,"
MU 1605 SOUND 3,40,8,2:POKE 53768,1
LE 1610 POSITION 4,11:? #6;"R E -- I a X"

RA 1615 POSITION 4,20:? #6;"observe"
AS 1617 POSITION 8,21:? #6;"WRITINGS"
PF 1620 MSS$=":CCCCCCCCCCCCCCCCCC:"
CC 1622 MST$=":XXXXXXXXXXXXXXXXXXXX:"
QM 1640 TRAP 1820
VK 1650 POSITION 2,0:? #6;"
       "
JE 1680 IF BRK THEN POKE 16,112:POKE 5377
       4,112
VL 1690 GOSUB 2020:GOSUB 7000:GOSUB 9000
WX 1700 GOSUB 2040:GOSUB 7000:GOSUB 9100
BA 1750 GOSUB 2420
BG 1770 GOSUB 10000
OP 1775 POSITION 8,5:? #6;"XXXX"
UL 1780 FOR SD=4 TO 14:POSITION SD,11:? #
       6;" H":FOR GQ=1 TO 7:NEXT GQ:NEXT SD
UI 1781 FOR SD=15 TO 5 STEP -1:POSITION S
       D,11:? #6;"G ":FOR GQ=1 TO 7:NEXT GQ:N
       EXT SD
MJ 1782 POSITION 4,11:? #6;"R E -- I a X"

RY 1800 GOTO 1640
DZ 1820 TRAP 40000:SOUND 0,12,10,8:SOUND
       0,0,0,0:GOTO 1640
EK 1860 OPEN #1,4,0,"D:GHOST.FNT"
RY 1880 X=16:CHSET=(PEEK(106)-8)*256:POKE
        756,CHSET/256
XS 1900 ICCOM=834:ICBADR=836:ICBLEN=840
HZ 1920 POKE ICBADR+X+1,CHSET/256:POKE IC
       BADR+X,0
HI 1940 POKE ICBLEN+X+1,4:POKE ICBLEN+X,0

XJ 1960 POKE ICCOM+X,7:A=USR(ADR("hhhLV
       "),X)
NZ 1980 CLOSE #1
AA 2000 RETURN
EF 2020 FOR K=2 TO 8:POSITION 0,K:? #6;MS
       S$:NEXT K
AJ 2030 RETURN
FY 2040 FOR K=2 TO 8:POSITION 0,K:? #6;MS
       T$:NEXT K
AS 2060 RETURN
UI 2420 SOUND 0,0,0,0:SOUND 1,0,0,0
WM 2421 FOR TY=1 TO 10:POKE 708,PEEK(5377
       0):POSITION 2,0:? #6;"the GHOST writer
       "
NJ 2425 SOUND 2,TY*3,8,4
VA 2430 IF TY>7 THEN POSITION 8,5:? #6;TO
       M$
WP 2440 IF TY>9 THEN POSITION 8,5:? #6;MO
       T$
JE 2490 SOUND 2,0,0,0
ZQ 2495 NEXT TY:SETCOLOR 0,PEEK(20),2:POK
       E 77,0
AK 2500 RETURN
IK 7000 IF BRK THEN POKE 16,112:POKE 5327
       9,112
AI 7010 RETURN
KI 9000 FOR RP=2 TO 80
OF 9005 PR=RP
KU 9010 WE=RND(1)*18:IF WE<1 THEN WE=10
PP 9030 IF PR>8 THEN PR=PR/13+2
UP 9040 POSITION WE,PR:? #6;"H"
UF 9050 NEXT RP
AD 9060 GOSUB 7000
BC 9070 RETURN
KK 9100 FOR RP=2 TO 80
OH 9105 PR=RP
KW 9110 WE=RND(1)*18:IF WE<1 THEN WE=10
PR 9130 IF PR>8 THEN PR=PR/13+2
NL 9140 POSITION WE,PR:? #6;"G"
UH 9150 NEXT RP
AF 9160 GOSUB 7000
BE 9170 RETURN
OJ 10000 SOUND 0,255,10,4:POKE 53768,1:SO
       UND 1,254,10,4:POKE 53768,1
DB 10010 RETURN
```

LISTING 2

```
WP 10 REM "GHOST WRITERS IN DIS-GUISE"
ER 20 REM BY THOMAS MOORE
PT 30 REM (c)1987, ANTIC PUBLISHING
UG 35 REM CREATES "D:GHOST.FNT"
CQ 40 REM (LINES 10-220 MAY BE USED WITH
   OTHER BASIC LOADERS IN THIS ISSUE.
IS 45 REM CHANGE LINE 70 AS NECESSARY.)
MG 50 DIM FN$(20),TEMP$(20),AR$(93)
HO 60 DPL=PEEK(10592):POKE 10592,255
RJ 70 FN$="D1:GHOST.FNT":REM THIS IS THE
   NAME OF THE DISK FILE TO BE CREATED
YS 80 GRAPHICS 0:? "      ANTIC'S GENERIC
   BASIC LOADER"
CD 90 ? ,"BY CHARLES JACKSON"
PW 100 POKE 10592,DPL:TRAP 170
PO 110 ? :? :? "Creating ";FN$:? "...plea
   se stand by."
LQ 120 RESTORE :READ LN:LM=LN:DIM A$(LN):
   C=1
BK 130 AR$="":READ AR$
XW 140 FOR X=1 TO LEN(AR$) STEP 3:POKE 75
   2,255
DG 150 LM=LM-1:POSITION 10,10:? "(Countdo
   wn...T-";INT(LM/10);")     "
UY 160 A$(C,C)=CHR$(VAL(AR$(X,X+2))):C=C+
   1:NEXT X:GOTO 130
MZ 170 IF PEEK(195)=5 THEN ? :? :? "TOO
   MANY DATA LINES!":? "CANNOT CREATE FIL
   E!":END
CZ 180 IF C<LN+1 THEN ? :? "TOO FEW DATA
    LINES!":? "CANNOT CREATE FILE!":END
AL 200 OPEN #1,8,0,FN$
PP 210 POKE 766,1:? #1;A$;:POKE 766,0
AF 220 CLOSE #1:GRAPHICS 0:? " COMPLETED 
   "
JC 1000 DATA 1029
QI 1010 DATA 00000000000000000000000000000
   360660000000240001951021021020000000000
   00000019500002400000000066036
AB 1020 DATA 00003612625422812603912603600
   000000000000000025500000025500000000000
   00000000000000320000040000064
GQ 1030 DATA 00000000000000360000000000000
   360360000000000000360000000000000064000
   00400000320000000240241260024
RB 1040 DATA 02400000000000000000248248024
   024024000000000012600000000000024024024
   248248000000000000000006012024
AZ 1050 DATA 04809606400012420619819819823
   012400000560560240240240240240001242300
   120240480962540001260120244
XC 1060 DATA 01200610206000001202806010820
   425401200012609612400600610206000012419
   8192252206230124000126006
XC 1070 DATA 01202404804804800012420623012
   420623012400012420619823012601202404802
   4024024024024024024024000
ZC 1080 DATA 00002402400002402404800004809
   625409604800000000000012600000012600000
   00000012006127006012000000
TX 1090 DATA 06010210201202400002400000006
   010211011009606200012015606005406210210
   2195238115099099110099099
CN 1100 DATA 22206010220419219219223012423
   811509909909909909922225410209612009609
   9102124254102096120096096
HM 1110 DATA 09609606010219819222219810206
   019819819820625423019819804802402402402
   4024024012030012012012
EO 1120 DATA 02805609619810810812012010810
   819822409609609609610212612019823825421
   41981981981981981982302 46
PR 1130 DATA 22220619819812420619819819819
   823012425210210210210809609619212423019
   8198198198206127238115102
SY 1140 DATA 10810210209919505810209606000
   600061020922540480961921921941981242301
   02102102102102110063195102
NH 1150 DATA 10210210210206002419519519521
   120322311909819519510206006010219519519
   5102102060024024024024126
WQ 1160 DATA 19801202425409619525400000000
   031031024024024000064096048024012006000
   00240240240310310000000000
BC 1170 DATA 00000802805409900000000000000
   000000000000000255000000060198246198230
   246000024024024031031024024
GD 1180 DATA 02400300300300300300300300302
   402402424824800000000000002402402424824
   8024024024000000000000248248024
FM 1190 DATA 02402400300701402805611224192
   192224112056028014007003001003007015031
   063127255000230246222206
XN 1200 DATA 23024600012819222242402482522
   542550001921921922242402540000001241981
   98230246124000000126192192
YM 1210 DATA 23824612600000000000000000000
   0255255000000000000024024024024000028
```

```
   028119119008028000000000000000
PP 1220 DATA 031031024024024000000000002552
   550000000000240240242552550240240240000
   000060126126126060000000000000
VI 1230 DATA 0000002552552552551921921921
   921921921921920000000000255255024024024
   024024024255255000000000000240
ID 1240 DATA 240240240240240240240400240240
   24031031000000000120096120096126024030
   000000024060126024024024000
LP 1250 DATA 000024024024126060024000000000
   2404812604802400000000000024012126012024
   000000135159135159129231225
GF 1260 DATA 2550000000621021021020590002
   240960961241021021240000000000060102096
   102060000012006006062102102
WH 1270 DATA 0580000000000601021260960620
   000140240240240620240240000000006124204
   204120194124192096096108118
BI 1280 DATA 1021020000480000240120120120
   12000012000012012012012012056000192102
   108120108230000048024024024
SD 1290 DATA 0240240120000001921021261261
   06099000000192124102102102099000000000
   060110102118060000000192124
VQ 1300 DATA 102102124096224000000000591021
   02062006007000192124118096096096000000
   000062096060134124000000048
BI 1310 DATA 126048048048054028000000002301
   02102110059000000000230102102060024000
   000000227107127062054000000
LQ 1320 DATA 0031020600240601021920000002
   30102102062204120000000126012126049126
   000000024060126126024060000
JF 1330 DATA 0240240240240240240240240240001
   26120124110102006000008024056120056024
   008000016024028030030028024
MZ 1340 DATA 016040202148070000
```

"printer pictures" go hi-res

ASCII ART CONVERTER

Article on page 20

LISTING 1

Don't type the TYPO II Codes!

```
ZY 10 REM ASCII ART CONVERTER
UF 20 REM BY PAUL TUPACZEWSKI
HA 30 REM (c) 1987, ANTIC PUBLISHING
CQ 40 REM (LINES 10-220 MAY BE USED WITH
   OTHER BASIC LOADERS IN THIS ISSUE.
IS 45 REM CHANGE LINE 70 AS NECESSARY.)
MG 50 DIM FN$(20),TEMP$(20),AR$(93)
HO 60 DPL=PEEK(10592):POKE 10592,255
DE 70 FN$="D1:ARTCONVR.EXE":REM THIS IS T
   HE NAME OF THE DISK FILE TO BE CREATED

YS 80 GRAPHICS 0:? "      ANTIC'S GENERIC
   BASIC LOADER"
CD 90 ? ,"BY CHARLES JACKSON"
PW 100 POKE 10592,DPL:TRAP 170
PO 110 ? :? :? "Creating ";FN$:? "...plea
   se stand by."
LQ 120 RESTORE :READ LN:LM=LN:DIM A$(LN):
   C=1
BK 130 AR$="":READ AR$
XW 140 FOR X=1 TO LEN(AR$) STEP 3:POKE 75
   2,255
DG 150 LM=LM-1:POSITION 10,10:? "(Countdo
   wn...T-";INT(LM/10);")      "
UY 160 A$(C,C)=CHR$(VAL(AR$(X,X+2))):C=C+
   1:NEXT X:GOTO 130
MZ 170 IF PEEK(195)=5 THEN ? :? :? "TOO
   MANY DATA LINES!":? "CANNOT CREATE FIL
   E!":END
CZ 180 IF C<LN+1 THEN ? :? "TOO FEW DATA
    LINES!":? "CANNOT CREATE FILE!":END
AL 200 OPEN #1,8,0,FN$
PP 210 POKE 766,1:? #1;A$;:POKE 766,0
AF 220 CLOSE #1:GRAPHICS 0:? " COMPLETED 
   "
IU 1000 DATA 3207
FV 1010 DATA 2552550000322510321620481690
   03157066003169063157068003169040157069
   003169004157074003169000157
GZ 1020 DATA 0750030320862280321060390320
   35038032084036032226038162032169012157
   066003032086228169042141048
EN 1030 DATA 0021690421410490021690331410
   47002169196141198002169096141000002169
   043141001002169192141014212
UI 1040 DATA 1690301410300391690321410310
   39032172039173202039201032240121201071
   208012169011056237051043141
BU 1050 DATA 0510430760970322010802080272
   38078040173078040201004208005169000141
   078040174078040189074040141
MT 1060 DATA 0230430760970322010672080291
   69001056237073040141073040010010160000
   170189065040153183042232200
MF 1070 DATA 1920042082440760970322010682
   08027238080040173080040201057208005169
   049141080040173080040056233
YW 1080 DATA 0321412060420760970322010762
   08131032032039076097032173082040201032
   208003076097032032085038169
VU 1090 DATA 0691410480021690421410490020
   32252032247033172039173202039201085240
   007201069208242076028033162
ES 1100 DATA 0001892190411571290402322240
   64208245076011034169175141048002169043
   141049002169000141199002169
TW 1110 DATA 0641410142120321880380321660
   38032176038169000141144039162016169007
   157066003169217157068003169
MZ 1120 DATA 0401570690031690001570720031
   69001157073003032086228160000185217040
   076124038170189097040208018
CV 1130 DATA 2540970401852170400562330321
   74144039157236043076026042200208223162
   016189067003201136208182032
AM 1140 DATA 2260381690701411990021690001
   41144039174144039169158157012044189044
   044024105128157044044032172
JT 1150 DATA 0391732020392011552400912011
   26208014173144039240237032148038206144
   039076149033201032208016173
VY 1160 DATA 1440392010312402170321480382
   38144039076149033201048144204201052176
   200056233048141145039174144
RP 1170 DATA 0391892360430241050321701731
   45039157097040174144039173248033243034
   145039024105016157044044169
JR 1180 DATA 0001570120442381440390761490
   33032188038032088037169034141047002169
   000141108044141109044169012
EE 1190 DATA 1412000021690101411960021690
   07141197002169002141198002169064141014
   212162016169007157066003169
ZD 1200 DATA 2171570680031690401570690031
   69000157072003169001157073003032086228
   162016189067003201136208003
LS 1210 DATA 0321120381690001411100441741
   10044189217040201155240048201013240044
   201010240029170172073040185
SR 1220 DATA 2170410241091080441411450391
   89097040174145039172109044032184034238
   108044238110044173110044208
ZE 1230 DATA 2010761710341690001411080442
   38109044076118036173083003201136208133
   032226038076029035141146039
IE 1240 DATA 1730780402080061731460390761
   47039201001208025138141145039152141144
   039169128056237145039168173
PX 1250 DATA 1440391701731460390761470392
```

continued on next page

```
   01002208026142145039140144039169159056
   23714503917024403423903516 9
VR 1260 DATA 09505623714403916817314603 90
   76147039138141114503915214111440391 69224
   024109145039168169159056237
YZ 1270 DATA 144039170173146039076147 0391
   730312082010032400501690071411 97002173
   252002201255240025173051043
IJ 1280 DATA 240007169192141002038208 0051
   690961410020380322130371692551 41252002
   169086141030039169035141031
TD 1290 DATA 039076029035173048002133 2071
   730490021332081691111410480021 69044141
   049002169012141197002173206
PI 1300 DATA 042141121045173031208201 0062
   080131652071410480021652081410 49002076
   029035173252002201255240229
TG 1310 DATA 032172039173202039201049 1442
   192010531762152010512080060320 14037076
   117035201052208003076030032
CP 1320 DATA 173123045240193173202039 2010
   492080940322280361690001411440 39165088
   133203165089133204160000177
EI 1330 DATA 203153217040153001041200 1920
   402082431620161690111570660031 69217157
   068003169040157069003169080
IG 1340 DATA 157072003240035235036169 0001
   570730030320862281730830032010 01208069
   165203024105040133203165204
NK 1350 DATA 105000133204238144039173 1440
   392010962081810761810362010502 08036032
   228036162016169011157066003
UT 1360 DATA 165088157068003165089157 0690
   031690001570720031690301570730 03032086
   228076071036076117035076010
JD 1370 DATA 037173083003201001208246 0761
   810360761370351620001690001572 36043232
   224096208246169000141200002
SN 1380 DATA 169010141197002162000138 1570
   970402322241202082480961740780 40173051
   043208011189141045205109044
LP 1390 DATA 208014076151036189145045 2051
   090442080030761700360761490341 69096141
   002038032213037169000141108
KG 1400 DATA 044141109044076149034169 1921
   410020380322130370761590361620 16169011
   157066003169224157068003169
WN 1410 DATA 036157069003169004157072 0031
   690001570730030320862281620161 69012157
   066003032086228076117035012
NA 1420 DATA 010006002162016169003157 0660
   031692360362310370791570680031 69040157
   069003169008157074003169000
DJ 1430 DATA 157075003032086228173083 0032
   010012080010961040762360380321 06039162
   000142144039169128174144039
ER 1440 DATA 157123045032172039174144 0391
   732020392011262080182240002402 28169000
   157123045169032157082040202
WM 1450 DATA 076019037201155240017224 0122
   402061570820400562330321571230 45232076
   019037169000157123045096162
OQ 1460 DATA 032169003157066003169211 1570
   680031690371570690031690081570 74003173
   051043208008169007157075003
EB 1470 DATA 076128037169008157075003 0320
   862281730510432400741730480020 24105003
   133203173049002105000133204
EM 1480 DATA 160000177203201079208020 1690
   781452031652030241050021332031 65204105
   000133204076194037201015208
UU 1490 DATA 006169014145203208005201 0652
   080010961652030241050011332031 65204133
   206133204076153037096083058
ZM 1500 DATA 169000141144039165088133 2031
   650891332041690001332051690642 32037227
   038133206160000177203072177
XY 1510 DATA 205145203104145205200192 0402
   082412381440391731440392010962 40029165
   203024105040133203165204105
OD 1520 DATA 000133204165205024105040 1332
   051652061050001332060762340370 96169000
   141144039169000133203169064
TN 1530 DATA 133204160000152145203200 1920
   402082492381440391731440392011 92240016
   165203024105040133203165204
ZB 1540 DATA 105000133204076048038096 1730
   510432080111691281412110341692 24141010
   035096169176141211034169016
ZZ 1550 DATA 141010035096174088003169 0321
   572170402322082500962011552080 03076124
   033201013208003076124033201
TQ 1560 DATA 010208003076124033076100 0331
   690001741440391570120441890440 44056233
   128157044044096162000138157
LN 1570 DATA 217040232208250096162000 1381
   570970402322241202082480961620 16169003
   157066003169079157068003169
UW 1580 DATA 040157069003169004157074 0031
   690001570750030320862281730830 03201001
   208011096162016228038223039
JS 1590 DATA 169012157066003076086228 1691
   491410480021690451410490021730 83003133
   212169000133213032170217032
ZK 1600 DATA 230216216160255200177243 0410
   311531750451772430162440321270 39032226
   038032172039076030032032106
BR 1610 DATA 039162000142144039169128 1741
   440391572080420321720391741440 39173202
   039201126208018224000240228
YC 1620 DATA 169000157208042169032157 0820
   402020760370392011552400172240 12240206
   157082040056233032157208042
JB 1630 DATA 232076037039169000157208 0420
   961620001690321570820401690001 57208042
   157123045232224013208238096
JH 1640 DATA 160032162127142031208142 0102
   122020162471360162420960000000 00141170
   039142171039140060040173060
ZI 1650 DATA 040010133205169000042133 2060
   762030390000001620481690071570 66003169
   202157068003169039157069003
IG 1660 DATA 169001157072003169000157 0730
   030760862280000062050382060062 05165205
   141061040038206165206141062
JM 1670 DATA 040006205038224039096040 2060
   062050382061652050241090610401 33205165
   206109062040133206165088024
ZM 1680 DATA 101205133205165089101206 1332
   061731710390410031701731710390 74074024
   101205133205165206105000133
MZ 1690 DATA 206172170039189056040057 0480
   401410610401890520401600000492 05013061
   040145205096000085170255063
VK 1700 DATA 207243252192048012003000 0000
   010750580240160000000170190180 00000092
   094093095000068049058032032
XP 1710 DATA 032032032032032032032032 0320
   320320320322170412120420400140 00002001
   003002002003001002002003002
GC 1720 DATA 001001001001003003003003 0030
   030030030030020020020020020030 03003003
   003003003003003003003003003
DX 1730 DATA 003003003003003003003003 0030
   030030030030030020020020010012 38144144
   039173144039201032240003076
LM 1740 DATA 124033076136033112112112 1121
   121122400711120421440021120020 00002000
   002000002000002000002065042
NL 1750 DATA 042112112112112071080042 0070
   650690421810510370000360370380 33053044
   052051000047050000165036041
ZI 1760 DATA 052000057047053050000047 0550
   460310000001922252422441922272 39238246
   229242244229242193192000008
RE 1770 DATA 099009017025024023012000 0331
   101161050990000481170981081051 15104105
   110103000041110099014000000
NA 1780 DATA 000000163111108117109110 0001
   111020001121141051101161111171 16026000
   024016000000000000000000000
VD 1790 DATA 000000000172111097100000 1021
   051081010000360170260000000000 00000213
   042208043000000000000000000
HO 1800 DATA 000000000000000000000000 1641
   011020971171081160001001141051 18101000
   110117109098101114000000000
CB 1810 DATA 000000000000000000000000 0001
   761050991161171141010001121111 15116105
   111110105110103026000092000
FR 1820 DATA 000000000000000000000000 0000
   001671140971121041050991150001 09111100
   101026000023000000000000000
GB 1830 DATA 000000000000000000000000 0000
   000001791761611631650001151160 97114116
   115000116104101000099111110
OO 1840 DATA 118101114115105111110000 0000
   721380721621441420102121420252 08232224
   160208245169126141000002169
MM 1850 DATA 043141001002104170104064 0721
   380721620001600141420102121690 74141024
   208169000141023208232224009
NP 1860 DATA 208238169196141024208169 0101
   410232081690961410000021690431 41001002
   104170104064112112112112071
TP 1870 DATA 204043007112112112112112 0020
   000020000021121121121121120060 00006065
   175043128174175183128209043
RF 1880 DATA 204044179165161178163168 1691
   741671281281661691721651281661 75170128
   162185180165179142142000000
```

```
AQ 1890 DATA 0000000000000000000000000000
   00000000000000000000000000000000000000
   000000000000000000000000000
ZR 1900 DATA 0000000000000000000000000000
   00000000000000000000000000000000000000
   000000000000000000000000000
ZU 1910 DATA 0000000000000000000000000000
   00000000000000000000000000000000000000
   000000000000000000000000000
ZP 1920 DATA 0001921922292382442292421922
   28225244225218192192192208221247232233
   2442292041922211221226236225
TQ 1930 DATA 2272350010010011121121121121
   12112112071137044048112002000002000002
   0000020000020320002065111044
BH 1940 DATA 1281281631681751751791651281
   61174128175176180169175174154128000000
   0000000000000000000000145000
SG 1950 DATA 0510971181010001150991141011
   01110000013000109111100101000023000000
   000000000000000000000000000
EK 1960 DATA 0000000000000000002050441940
   45000146000051097118101000115099114101
   101110000013000109111100101
VD 1970 DATA 0000230110000000000000000000
   00000000000000000000000000000000147000
   037110116101114000115097118
FB 1980 DATA 1010001021051081011100971091
   01000000000000000000000000000000000000
   000000000000000000000148000
MM 1990 DATA 0501011151160971141160001121
   14111031140971090000000000000000000000
   000000000000000000000000161
FJ 2000 DATA 1741851281711651850001161111
   03103108101115000115099114101101110115
   012000179180161178180000102
AA 2010 DATA 1111140001150991141100000000
   00000000051097118101000102105108101110
   097109101000036017026000000
HN 2020 DATA 0000000000000000000000000000
   00000000000000000000096160096160192160
   192160112112112112112112112
BU 2030 DATA 1121121120711650450651490450
   00000037050050047050000013000000000000
   000000000000000000000000000
DU 2040 DATA 0000000000000000000000002240
   02225002000032
```

tricky Atari optical illusion

AFTERIMAGE

Article on page 37

LISTING 1

Don't type the TYPO II Codes!

```
IJ 70 REM AFTERIMAGE TEST
GT 80 REM BY NICK KOZIUPA
HG 90 REM (c) 1987, ANTIC PUBLISHING
QI 100 GOSUB 1000
AA 110 REM COLOR CHOICE
TV 120 ? "▪":? :POKE 752,1
GJ 130 ? "                   Afterimage Test"
EY 140 ? :? "Choose the color of the obje
   ct to focus on:"
NX 150 ? :? "1)  Red":? "2)  Blue":? "3)
    Yellow":? "4)  Green":? "5)  Purple"
VY 160 ? "6)  Orange"
CF 170 GET #1,A
DN 180 IF A=49 THEN COL=4:LUM=2:GOTO 250
DO 190 IF A=50 THEN COL=8:LUM=2:GOTO 250
DW 200 IF A=51 THEN COL=1:LUM=8:GOTO 250
BC 210 IF A=52 THEN COL=12:LUM=2:GOTO 250
BU 220 IF A=53 THEN COL=5:LUM=2:GOTO 250
EB 230 IF A=54 THEN COL=2:LUM=6:GOTO 250
OO 240 GOTO 170
SN 250 REM SHAPE CHOICE
OK 260 ? "▪":?
GS 270 ? "                   Afterimage Test"
QL 280 ? :? "Choose the shape of the obje
   ct to focus on:"
QV 290 ? :? "1)  Circle":? "2)  Square":?
    "3)  Triangle":? "4)  Cross"
BT 300 GET #1,A
NH 310 IF A=49 THEN SHAPE=1:GOTO 360
KW 320 IF A=50 THEN SHAPE=2:GOTO 360
MH 330 IF A=51 THEN SHAPE=3:GOTO 360
NS 340 IF A=52 THEN SHAPE=4:GOTO 360
MM 350 GOTO 300
JJ 360 ON SHAPE GOSUB 380,600,690,760
MH 370 GOTO 110
LE 380 REM CIRCLE TEST
LI 390 GRAPHICS 7+16:POKE 710,10:POKE 712
   ,10:COLOR 1:POKE 708,10
SY 400 RESTORE 500
LF 410 POKE 765,1
AF 420 FOR N=0 TO 95
EU 430 READ X,Y:PLOT X,Y
RC 440 IF N>55 THEN XIO 18,#6,0,0,"S:"
IC 450 NEXT N
GT 460 SETCOLOR 0,COL,LUM
YE 470 FOR DE=1 TO 3500:NEXT DE
MH 480 POKE 708,10
MT 490 FOR DE=1 TO 2500:NEXT DE:RETURN
HE 500 DATA 77,33,78,33,79,33,80,33,81,33
   ,82,33,83,33,84,34,85,34,86,34
PT 510 DATA 87,35,88,35,89,36,90,37,91,38
   ,92,39,92,40,93,40,93,41,93,42
BM 520 DATA 94,42,94,43,94,44,94,45,95,45
   ,95,46,95,47,95,48,95,49,95,50
FX 530 DATA 95,51,94,51,94,52,94,53,94,54
   ,93,54,93,55,93,56,92,56,92,57
TW 540 DATA 91,58,90,59,89,60,88,61,87,61
   ,86,62,85,62,84,62,83,63,82,63
YA 550 DATA 81,63,80,63,79,63,78,63,77,63
   ,76,62,75,62,74,62,73,61,72,61
SZ 560 DATA 71,60,70,59,69,58,68,57,68,56
   ,67,56,67,55,67,54,66,54,66,53
QK 570 DATA 66,52,66,51,65,51,65,50,65,49
   ,65,48,65,47,65,46,65,45,66,45
JI 580 DATA 66,44,66,43,66,42,67,42,67,41
   ,67,40,68,40,68,39,69,38,70,37
DA 590 DATA 71,36,72,35,73,35,74,34,75,34
   ,76,34
WQ 600 REM SQUARE TEST
KV 610 GRAPHICS 7+16:POKE 710,10:POKE 712
   ,10:COLOR 1:POKE 708,10
GT 620 PLOT 64,35:DRAWTO 96,35:DRAWTO 96,
   62:DRAWTO 64,62
LL 630 POKE 765,1
YQ 640 FOR X=62 TO 35 STEP -1:PLOT 64,X:X
   IO 18,#6,0,0,"S:":NEXT X
GT 650 SETCOLOR 0,COL,LUM
YE 660 FOR DE=1 TO 3500:NEXT DE
MH 670 POKE 708,10
MT 680 FOR DE=1 TO 2500:NEXT DE:RETURN
BL 690 REM TRIANGLE TEST
KU 700 GRAPHICS 7+16:POKE 710,10:POKE 712
   ,10:COLOR 1:POKE 708,10
SM 710 FOR X=60 TO 100:PLOT 80,32:DRAWTO
   X,64:NEXT X
GO 720 SETCOLOR 0,COL,LUM
XZ 730 FOR DE=1 TO 3500:NEXT DE
MC 740 POKE 708,10
MO 750 FOR DE=1 TO 2500:NEXT DE:RETURN
ZO 760 REM CROSS TEST
LI 770 GRAPHICS 7+16:POKE 710,10:POKE 712
   ,10:COLOR 1:POKE 708,10
DN 780 FOR X=75 TO 85:PLOT X,35:DRAWTO X,
   62:NEXT X
SF 790 FOR X=44 TO 53:PLOT 64,X:DRAWTO 96
   ,X:NEXT X
GL 800 SETCOLOR 0,COL,LUM
XW 810 FOR DE=1 TO 3500:NEXT DE
LZ 820 POKE 708,10
ML 830 FOR DE=1 TO 2500:NEXT DE:RETURN
XW 1000 GRAPHICS 0:POKE 752,1:POKE 82,0:?
    "▪"
BY 1010 ? :? :? "                 ███Afterimage█
   Test███   "
BU 1015 ? :? "                 by Nick Koziup
   a"
DQ 1020 FOR DE=1 TO 350:NEXT DE
```

continued on next page

```
HW 1040 CLOSE #1:OPEN #1,4,0,"K:"
BO 1045 ? "}":? :? "                 Afterimag
e Test"
XG 1050 ? :? "Do you need instructions (Y
/N)?";
CG 1060 GET #1,A
SG 1070 IF A=89 THEN 1100
BX 1080 IF A=78 THEN RETURN
QP 1090 GOTO 1060
NB 1100 REM INSTRUCTIONS
EX 1110 ? "}  Afterimage Test        by Nic
k Kozlupa  "
CC 1120 ? :? "  This program demonstrates
 afterimages":? "(how your eyes percie
ve an image ";
ZZ 1130 ? "after  it has disappeared.)":?
 :? "  After selecting an object to vi
ew,"
SI 1140 ? "the screen will change to a du
ll shade":? "of white.  Within seconds
, the shape"
FP 1150 ? "will appear at the center of t
he":? "screen.  Fix your eyes upon the
 center"
CO 1160 ? "of the object.  After about 15
":? "seconds, the object will disappea
r."
IT 1170 ? "Continue to look at the area w
here the":? "shape had been.  If the e
xperiment was"
LN 1180 ? "successful, the image will sti
ll be":? "visible, but now in the oppo
site"
ER 1190 ? "color.":? :? "           Press [
START] to begin             "
OQ 1200 IF PEEK(53279)<>6 THEN 1200
AG 1210 RETURN
```

ST RESOURCE

ST COLOR COSINES

Article on page 59

LISTING 1

```
'
' ST Color Cosines in GFA BASIC
' (c) 1987 Antic Publishing
' Written by Patrick Bass
'
' ----------------------------------------
Xres=(-319*(Xbios(4)=0))+(-639*(Xbios(4)>0))
Yres=(-199*(Xbios(4)<2))+(-399*(Xbios(4)=2))
Left_button=1
Right_button=2
Both_buttons=3
'
Setcolor 0,0,0,0
Mk=0
While Mk<>Both_buttons
  Sinamplitude=Rnd(9)*(Yres/2)
  Cosamplitude=Rnd(9)*(Yres/2)
  Sinperiod=(Rnd(9)*70)+20
  Cosperiod=(Rnd(9)*70)+20
  Color Rnd(9)*16
  Size=(Rnd(9)*4)+2
  '
  For X=0 To Xres Step Size
    Y1=(Sin(X/Sinperiod)*Sinamplitude)+(Yres/2)
    Y2=(Cos(X/Cosperiod)*Cosamplitude)+(Yres/2)
    Line X,Y1,(Xres-X),Y2
    '
    Mouse Mx,My,Mk
    '
    If Mk=Both_buttons
      X=Xres+1
    Endif
    '
    If Mk=Left_button
      Pause 20
      Repeat
        Mouse Mx,My,Mk
      Until Mk>0
    Endif
    '
    If Mk=Right_button
      Cls
    Endif
    '
  Next X
Wend
Setcolor 0,7,7,7
'
End
```

LISTING 2

```
1000  '
1010  ' ST Color Cosines in ST BASIC
1020  ' (c) 1987 Antic Publishing
1030  ' Written by Patrick Bass
1040  '
1050  '----------------------------------
1060   res=peek(systab)
1070   Xres=(-319*(res=4))+(-639*(res<4))
1080   Yres=(-199*(res>1))+(-399*(res=1))
1090   fullw 2
1100   Left.button=1
1110   Right.button=2
1120   Both.buttons=3
1130  '
1140   while Mk<>Both.buttons
1150      Sinamplitude=Rnd(9)*(Yres/2)
1160      Cosamplitude=Rnd(9)*(Yres/2)
1170      Sinperiod=(Rnd(9)*70)+20
1180      Cosperiod=(Rnd(9)*70)+20
1190      Color 1,1,Rnd(9)*(-16*(res=4))+(-4*(res<4))
1200      Size=(Rnd(9)*4)+2
1210      '
1220      for X=0 to Xres step Size
1230           Y1=(sin(X/Sinperiod)*Sinamplitude)+(Yres/2)
1240           Y2=(cos(X/Cosperiod)*Cosamplitude)+(Yres/2)
1250           linef X,Y1,(Xres-X),Y2
1260           '
1270           A#=GB
1280           Gintout=peek( A#+12 )
1290           gemsys( 79 )
1300           Mk=peek( Gintout+6 )
1310           if Mk=Both.buttons then X=Xres+1
1320           if Mk=Right.button then clearw 2
1330      next X
1340   wend
1350  '
1360  end
```

Checksum for file: stcosine.bas

```
                                                1270 :01F4
1000 :00F2     1090 :0326     1180 :07CC     1280 :06DA
1010 :0943     1100 :0585     1190 :0B89     1290 :0425
1020 :087B     1110 :05FA     1200 :0555     1300 :06FA
1030 :090A     1120 :05FE     1210 :00EB     1310 :0B95
1040 :00EC     1130 :00EC     1220 :08AD     1320 :0BB1
1050 :06BA     1140 :08DB     1230 :0F46     1330 :02DE
1060 :06DA     1150 :0A20     1240 :0F39     1340 :0276
1070 :0978     1160 :0A1C     1250 :073F     1350 :00F0
1080 :097F     1170 :07D0     1260 :00F0     1360 :0201
```

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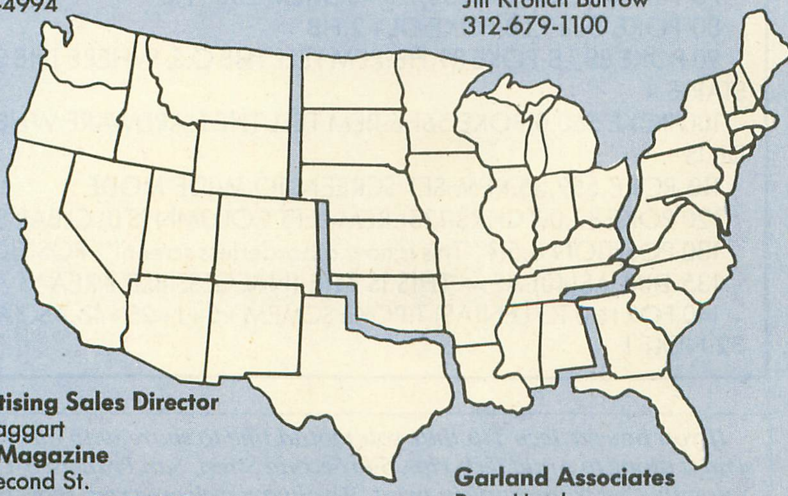
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AUTOBOOT BASIC

To make your favorite BASIC program run automatically when you boot your Atari, rename it AUTORUN.BAS. Then RUN the following program which will create an AUTORUN.SYS file on the same disk.

We found this listing in the February 1987 issue of Pan*Atari*News, from the Panama Canal Atari Users' Group.

```
10 OPEN #4,8,0,"D:AUTO-
RUN.SYS"
20 FOR I=1 TO 94:READ A:PUT
#4,A
30 NEXT I:CLOSE #4:END
40 DATA 255,255,0,6,81,6,216,24
,173,48,2,105,4,133,204,173,49
,2,105,0,133,205,24,160,0,177
,204,105,162,133,212
50 DATA 160,1,177,204,105,0,133
,213,160,32,185,49,6,145,212
,136,208,248,169,13,141,74,3,96
,0,48,47,43,37,0,24
60 DATA 20,18,12,17,18,26,50,53
,46,0,2,36,17,26,33,53,52,47
,50,53,46,14,34,33,51,2,226,2,227
,2,0,6
```

The following two Tech Tips were sent in by Texan James Hague, author of *Uncle Henry's Nuclear Waste Dump* (**Antic**, December 1986).

[BREAK] KEY TRAP

Sometimes you prefer your program to detect the [BREAK] key when it is pressed, instead of simply disabling [BREAK] entirely. The following short program is an example of how to do it.

```
10 FOR A=0 TO 6:
READ B:POKE 256+A,B:NEXT A
20 POKE 566,0:POKE 567,1
30 DATA 169,1,141,7,1,104,64
40 POKE 263,0
50 IF PEEK(263)=0 THEN 50
60 ? "BREAK WAS PRESSED":
GOTO 40
```

RAINBOW STRIPES

Here is a variation of the famous Atari "rainbow effect" created by display list manipulation. With this program, pressing any keys on your Atari keyboard will produce a different effect. Remember that [SHIFT]ed and [CONTROL]led keypresses are different.

```
10 FOR A=0 TO 14:READ B:POKE
1536+A,B:NEXT A
20 A=USR(1536)
30 DATA 200,152,74,45,9,210,141
,10,212,141,24,208,76,0,6
```

ROTATE FIX

If you tried and failed to get *Rotate* from the February, 1987 Tech Tips to work, here is the fix:

1. Change the 2317 in line 40 to 217.
2. Change the 233 in line 40 to 223.
3. Change the 4C in line 70 to 40.
4. Change the 102 in line 80 to 1024.

BIG SCREEN

The following program was written by David Pochron and appeared in the March, 1987 issue of Florida's Atari Journal. It will create a 48 X 28 character display in GRAPHICS 0 mode by altering the display list and using the wide screen mode. A suggested use for this technique is in VCR applications, such as creating title screens. Note that printing to the "forbidden zone" requires extra programming, as in line 140 of the sample program, because the operating system is not set up for the extra space.

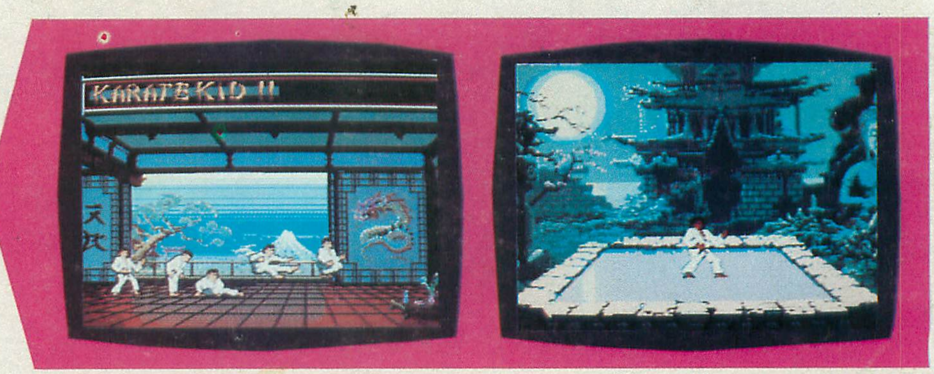
```
10 MEMTOP=PEEK(106)*256
20 DL=1536:REM NEW HOME FOR DISPLAY LIST
30 TRAP 40:FOR I=DL TO DL+34:READ D:POKE I,D:NEXT I
40 DATA 66,0,0,2,2,2,2,2,2,2,2,2,2,2,2,2,2,2,2,2,2,2,2,2,2,2,2,2,2,2
,2,2,65,0,6
50 SCSIZE=28*48
60 SCMEM=MEMTOP-SCSIZE:REM GET START ADDRESS OF NEW
SCREEN
70 HB=INT(SCMEM/256):LB=SCMEM-256*HB
80 POKE DL+1,LB:POKE DL+2,HB
90 POKE 88,LB:POKE 89,HB:REM TELL THE O.S. WHERE THE SCREEN
STARTS
100 POKE 560,0:POKE 561,6:REM TELL THE HARDWARE WHERE THE
DL IS
110 POKE 559,35:REM SET SCREEN TO WIDE MODE
120 POKE 82,0:? CHR$(125):REM LEFT COLUMN IS 0; CLEAR SCREEN
130 POSITION 0,5:? "This is now a borderless screen!":POSITION 0,10
135 DIM A$(40):A$="THIS IS THE INACCESSIBLE AREA"
140 FOR I=0 TO LEN(A$)-1:POKE SCMEM+5+I+25*48,ASC(A$(I+1))-
32:NEXT I
```

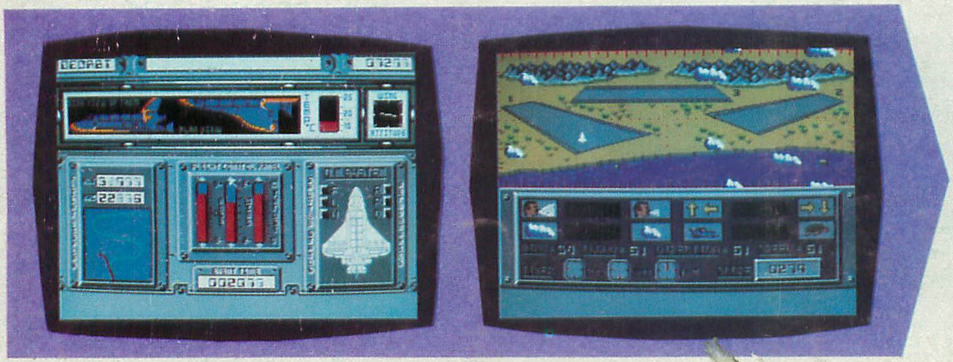
If you have a Tech Tip that you would like to share with other readers, send it along to Antic Tech Tips, 544 Second Street, San Francisco, CA 94107. You might get your name in print. We always welcome very short programs that demonstrate the Atari's powers, simple hardware modifications, or useful macros for popular software.

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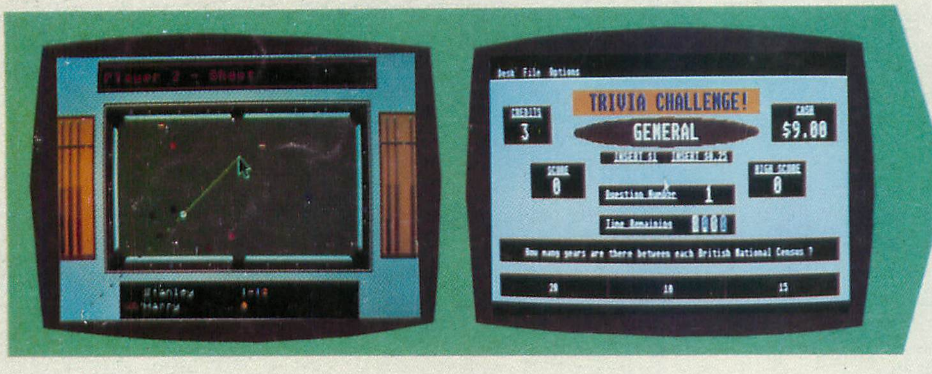
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